

1 THE UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF TEXAS
3 MARSHALL DIVISION
4 INTELLECTUAL VENTURES I LLC,) (
5 PLAINTIFF) (CIVIL ACTION NO.
6 VS.) (2:17-CV-577-JRG
7) (MARSHALL, TEXAS
8 T-MOBILE USA, INC., T-MOBILE) (
9 US, INC., ERICSSON INC., AND) (
10 TELEFONAKTIEBOLAGET LM) (
11 ERICSSON,) (FEBRUARY 6, 2019
12 DEFENDANTS) (12:35 P.M.

13 TRANSCRIPT OF JURY TRIAL

14 BEFORE THE HONORABLE JUDGE RODNEY GILSTRAP

15 UNITED STATES CHIEF DISTRICT JUDGE

16 APPEARANCES:

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25 (Proceedings recorded by mechanical stenography, transcript
produced on a CAT system.)

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P R O C E E D I N G S

(Jury out.)

COURT SECURITY OFFICER: All rise.

THE COURT: Be seated, please.

Defendants, are you prepared to call your next witness?

MR. KUBEHL: We are, Your Honor.

THE COURT: All right. Let's bring in the jury, please, Ms. Denton.

(Jury in.)

THE COURT: Please be seated.

Defendants, call your next witness.

MR. KUBEHL: Defendants call Dr. Stephen Wicker.

THE COURT: All right. If you'll come forward and be sworn, Dr. Wicker.

(Witness sworn.)

THE COURT: Please come around, and have a seat on the witness stand.

THE WITNESS: Thank you.

THE COURT: All right, counsel. You may proceed.

MR. KUBEHL: Thank you, Your Honor.

STEPHEN WICKER, Ph.D., DEFENDANTS' WITNESS, SWORN

DIRECT EXAMINATION

BY MR. KUBEHL:

Q. Dr. Wicker, could you introduce yourself to the jury,

1 please.

2 A. Yes. My name is Steve Wicker. I'm a professor of
3 electrical and computer engineering at Cornell University.

4 Q. What subject matter will you be discussing today?

5 A. Generally speaking, wireless technologies, but I'm
6 going to get into the details of LTE and base stations and
7 how they -- how they operate.

8 Q. Did you -- did you prepare some slides to help aid in
9 your testimony?

10 A. Yes, I did.

11 MR. KUBEHL: Could we have Slide No. 1, please.

12 Q. (By Mr. Kubehl) Dr. Wicker, can you tell us about your
13 educational background.

14 A. Okay. I have a Bachelor of Science from the University
15 of Virginia, a Master of Science from Purdue University,
16 and a Ph.D. from the University of Southern California.
17 They're all in electrical engineering.

18 Q. You mentioned you're a professor at Cornell University.
19 What do you teach there?

20 A. That's correct. Electrical and computer engineering
21 with an emphasis on wireless technologies.

22 Q. How long have you done that?

23 A. Well, I've been a professor for 32 years. I started at
24 Georgia Tech and then went on to Cornell.

25 Q. Do you teach courses in LTE?

1 A. Yes, I do.

2 Q. How many total years have you taught in the wireless
3 space?

4 A. Well, I started teaching in 1987 when I got my Ph.D.
5 So going on 32 years.

6 Q. Do you have duties at Cornell beyond your teaching
7 responsibilities?

8 A. Yes, I do. As a professor, we have lots of things we
9 have to do. We have to do service. Right now I'm on a
10 faculty search committee, for example. But we also do
11 research.

12 In fact, research is a big part of what we do.
13 I've been conducting research in wireless longer than I've
14 been a professor.

15 Q. As a result of the research and work that you've done,
16 have you been awarded any United States patents?

17 A. Yes. I have five U.S. patents and a number of foreign
18 patents.

19 Q. Have you published any articles or written any books
20 that deal with wireless communications?

21 A. Yes.

22 Q. About how many?

23 A. I haven't actually counted them, but I've got a total
24 number of roughly 250 journal articles and publications and
25 six books, and most of them deal with wireless or wireless

1 technologies.

2 Q. Any of those deal with LTE technology?

3 A. A lot of them deal with the specific technologies that
4 go into LTE. My most recent book deals specifically with
5 LTE.

6 Q. Have you done any work outside of the university
7 context in industry?

8 A. Yes, I have.

9 Q. Tell me about that, please.

10 A. Okay. So I've done a lot of consulting with various
11 industrial groups.

12 In particular, I worked with SkyTel. There's a
13 couple of them here -- SkyTel, Motorola, Broadcom, Lockheed
14 Martin, and others, helping them to develop particular
15 technologies for their wired and wireless products.

16 Q. Have you won any awards for your work in wireless
17 communications?

18 A. Yes, I have.

19 MR. KUBEHL: If we can go to the next slide, I
20 think I've listed some of those.

21 A. There we go. Okay. So with regard to awards, I've had
22 a number of teaching awards over the years ago. I'm also a
23 fellow of the IEEE. I was appointed by the White House to
24 the U.S. Air Force Scientific Advisory Board in 2010, and
25 then I think the rest of these are teaching awards.

1 Q. (By Mr. Kubehl) What does it mean to be a fellow in
2 the IEEE?

3 A. Well, the IEEE is the Institute of Electrical and
4 Electronic Engineers. It is a professional organization.

5 I think it's one of the largest in the world. It
6 is the professional organization for electrical engineers,
7 and there's a number of grades, member, senior member. And
8 then fellow means you've been elected by the existing
9 fellows to join that group. It's an honor.

10 Q. So out of all these awards that I made you list here,
11 what are you most proud of?

12 A. I'm actually most proud of the teaching awards. I've
13 been teaching a long time, I do enjoy it, and being
14 recognized for it always feels good.

15 Q. Have you done any work for the United States Government
16 related to communications?

17 A. Yes, I have.

18 Q. Can you tell the jury about that, please?

19 A. Certainly. I do a lot of consulting with the federal
20 government, various organizations.

21 In fact, I was doing a little bit yesterday. I
22 test -- excuse me, I gave a briefing to the congressional
23 committee on science and technology at -- in Congress.
24 I met and talked to the White House National Economic
25 Council, a nice trip to the White House.

1 And I have also served as a consultant to the
2 Air Force Scientific Advisory Board and DARPA. DARPA is
3 the Defense Advanced Research Projects Agency. They
4 develop new technologies for our national defense.

5 Q. Have you been recognized in federal courts as an expert
6 in wireless communication before?

7 A. Yes, I have.

8 Q. Do you have a rate that you ordinarily charge for your
9 service?

10 A. Yes, I do.

11 Q. What is that rate?

12 A. \$750.00 an hour.

13 Q. Is that what you're charging in this case?

14 A. Yes.

15 MR. KUBEHL: Your Honor, we tender Dr. Wicker as
16 an expert in wireless communications technology.

17 THE COURT: Is there objection?

18 MR. BLACK: No, Your Honor. This witness has been
19 properly qualified.

20 THE COURT: All right. Then the Court will
21 recognize the witness as an expert in the designated field.

22 Continue, counsel.

23 Q. (By Mr. Kubehl) Dr. Wicker, when you start on a case
24 like this or when you're first considering a case, what's
25 the general process for how you address the issues?

1 A. Okay. What often happens is someone calls me, or I
2 receive an email, and we'll have a preliminary discussion.

3 I'll ask to look at the patents to see what the
4 technologies are. Is it something that I'm really
5 comfortable with or something that's stretching it.

6 And then we'll discuss who the parties are and
7 whether or not I have a conflict, and then we'll talk about
8 what the issues are.

9 Q. Do you take every case that is available to you?

10 A. No.

11 Q. About what percentage of cases do you take?

12 A. I only take about 10 percent of the cases.

13 Q. And why is that?

14 A. A number of reasons. Often there are conflicts with
15 regard to the parties. There are conflicts with regard to
16 the law firms.

17 Often it's something, you know, I just don't feel
18 I'm comfortable with, or I disagree with the positions that
19 are being taken by the firm that's contacted me.

20 And finally, sometimes I'm just too busy. I'm a
21 professor full time. So there's only so much time in the
22 day.

23 Q. When you do work on patent cases, do you always work
24 for the patentholder or the Defendant, or is it a mix?

25 A. It's a mix.

1 Q. Who are some of the companies that you've worked on who
2 are owners of patents that you've given expert opinions
3 for?

4 A. Well, I've worked for Apple and Cisco, Motorola,
5 California Institute of Technology, a university in
6 California.

7 Q. Today, you're -- you're here addressing issues that are
8 facing Ericsson and T-Mobile. But other than those
9 companies, what other companies have you worked for on the
10 Defendants' side of a patent case?

11 A. Okay. Once again, Apple, but also AT&T wireless. I've
12 worked for Sprint. Actually I've worked for Sprint on both
13 sides, asserting Sprint patents and defending against other
14 patents, and a number of other similar companies. Intel is
15 another one that comes to mind.

16 Q. When it -- when it came to your work on this case, what
17 information did you consider?

18 A. Okay. So I considered quite a bit of information.
19 I started with the patents-in-suit, the three patents that
20 have been discussed over the last couple of days.

21 And then I looked at the file histories of those
22 patents. That's the back and forth between the inventors
23 and the Patent Office.

24 And I then proceeded to look at the devices that
25 had been accused, the Ericsson base stations, and looked at

1 how they operated.

2 And, in particular, I looked at a lot of source
3 code. The source code pretty much determines how the
4 system operates.

5 And I looked at a lot of documents dealing with
6 depositions, like the ones that were played on video here
7 in court, and other documents, as well.

8 Q. I want to ask you a little bit more about the source
9 code. What exactly is source code?

10 A. Okay. So source code is a series of instructions.
11 It's literally just a very long list of instructions that a
12 processor will follow.

13 So the processor goes instruction-by-instruction
14 to do whatever it is it's supposed to be doing.

15 So, for example, your cell phones have a lot of
16 software in them that dictate how that cell phone behaves.
17 So I study software systems like the accused base stations
18 so that I'll know exactly what they're doing.

19 Q. Why not just let someone else look at the software and
20 tell you how it works?

21 A. Well, I'm the one who has to form the final opinion, so
22 I'm the one who has to understand how the system works. So
23 I'd like to look at the software myself.

24 Q. Are you going to explain some background concepts to
25 help the jury understand the technology we're dealing with?

1 A. I'd be happy to.

2 MR. KUBEHL: Your Honor, if I could move the easel
3 up. This would be the point in his testimony where he'd do
4 a brief tutorial.

5 THE COURT: All right. You have leave to move the
6 easel as previously discussed.

7 MR. KUBEHL: Thank you, Your Honor.

8 THE COURT: And, Mr. Black, depending on where
9 Mr. Kubehl stands, if you need to move around to the far
10 side of the jury box so you have a better angle to view it,
11 you're free to do that.

12 MR. BLACK: Thank you, Your Honor. I'm okay so
13 far.

14 MR. KUBEHL: Okay. Your Honor, would -- would it
15 be all right for Dr. Wicker to approach the easel?

16 THE COURT: Yes. Dr. Wicker, you may walk down to
17 the easel. We have a handheld microphone the Court
18 Security Officer will give you.

19 THE WITNESS: Thank you, Your Honor. Thank you.

20 MR. KUBEHL: Your Honor, if I speak loudly, would
21 it be all right for me to ask my questions from behind so I
22 can see what he's drawing?

23 THE COURT: Yes.

24 MR. KUBEHL: Thank you.

25 THE COURT: Yes. We talked about that. That's --

1 no, sir, I thought -- I thought you meant to the side of
2 the easel.

3 MR. KUBEHL: Right here.

4 THE COURT: Right there?

5 MR. KUBEHL: Yes, sir.

6 THE COURT: Okay. That's why I told Mr. Black if
7 you were blocking him, he could move.

8 All right. Let's proceed.

9 MR. KUBEHL: Are you okay, Mr. Black?

10 MR. BLACK: Yes.

11 Q. (By Mr. Kubehl) Dr. Wicker, could you start by giving
12 us a broad picture of the network we're going to be talking
13 about?

14 A. Okay. So I think -- let's see, we've heard a lot about
15 cell phones. I'd like to start on the left with a cell
16 phone.

17 THE WITNESS: If I may, I'll hold this with one
18 hand, if I can be heard -- display -- is that all right?

19 THE COURT: Well, that's why we use the microphone
20 because ordinarily you're looking at the board with your
21 back to the jury when you're talking, but I'll -- I'll let
22 you try it. If we don't hear you, I'll let you know.

23 THE WITNESS: Thank you, Your Honor. I'll do my
24 best to project.

25 THE COURT: Just give it to the Court Security

1 Officer because it's going to roll off when you walk away
2 from it.

3 A. Okay. So returning to my answer, we've got a piece of
4 user equipment here, so I'll write UE. That term's been
5 used a lot.

6 User equipment is the LTE term for cell phone.
7 Unfortunately, each generation seems to call it something
8 different, so you've heard mobile station or mobile
9 equipment. But we'll use UE for LTE.

10 Q. (By Mr. Kubehl) Okay. In the system we're talking
11 about, what is the mobile phone talking to?

12 A. Okay. So your cell phones talk to a base station.

13 Now, the base station consists of an antenna, and
14 I think we saw a picture of one earlier today, large
15 antenna. I think it was behind a bank building right on
16 the square.

17 Now, associated with that antenna, there is a box,
18 and it's not a very big box. It may look like a shed. It
19 could be even smaller, but that contains the electronics
20 of -- which we saw an example earlier in the case.

21 Q. Okay. What's the job of that base station?

22 A. Okay. There are two things -- well, actually, there
23 are several jobs, but with regard to the user equipment,
24 there's two things going on. There are uplink
25 communications -- and I'll write uplink, up as in up to the

1 antenna -- and downlink communications, so that goes like
2 that.

3 Q. Okay. And then what -- where do the communications go
4 from there?

5 A. Okay. So this part is wireless. There is a lot that
6 goes on, though, that is wired. Everything I'm going to
7 draw from here going this way is going to be wired.

8 Okay. So from the base station, we're going into
9 the core network. I'm going to write wired right here.

10 Now, the first stop in the core network is a box
11 called the serving gateway, and I'll write SGW for serving
12 gateway. There's a lot of those. There's probably several
13 dozen across the State of Texas, for example, that are
14 serving different base stations.

15 Q. Okay. And then where does it go from the serving
16 gateway?

17 A. Okay. From the serving gateway, we go to a packet
18 gateway. There's not as many of those. There are a
19 relatively small number of them. They talk to a lot of
20 service -- serving gateway, which in turn talk to a base
21 station.

22 Q. What's the purpose of that packet gateway?

23 A. The packet gateway is the interface or the Internet.
24 I should note that at this point, we always draw networks
25 as clouds because they're easy to draw.

1 You may have heard the term core network or EPC.
2 It stands for evolved packet core. That is that part of
3 the network. This packet gateway is responsible for
4 connecting to the much larger world of the Internet.

5 Q. So if I'm on my phone and I want to go to YouTube,
6 where is YouTube out on the Internet? Can you show me
7 that?

8 A. Okay. So YouTube is going to be hosted by a server out
9 here on the Internet. So I'll draw that server -- draw all
10 my servers as sort of garbage cans. But that's a server,
11 and we'll write YouTube there. So it's out in the world of
12 the Internet.

13 Q. Okay. And then let's say I wanted to go to Netflix.
14 Is that on the same server or a different server?

15 A. Okay. Netflix itself is really complicated. It has
16 many, many servers. But it will look similar. It will be
17 another server -- or at actually a lot of servers that are
18 out on the Internet. So we'll write Netflix.

19 Q. In what form does the information come from the YouTube
20 servers to get toward my phone?

21 A. Okay. They come as packets. The Internet works using
22 what are called IP packets. IP stands for Internet
23 Protocol. The entire Internet is a world of IP packets
24 going from network to network.

25 Q. So if, for whatever reason, you had streaming going

1 from YouTube and Netflix -- well, tell me the path. Let's
2 start with YouTube. Path of packets from YouTube to my
3 phone.

4 A. Okay. So let's suppose you are streaming something
5 from YouTube, so what's going to happen is YouTube -- and
6 it is a big complicated network, so I'm simplifying it,
7 because it's going to cause packets to flow in through the
8 packet gateway. The packet gateway sees the IP address,
9 routes it to the serving gateway to the base station.

10 Now, there is a special concept that's involved
11 here. Once you hit the packet gateway, there is a tunnel
12 or a bearer associated with this connection.

13 Q. Could you draw that tunnel?

14 A. Certainly. We can think of it as something that looks
15 like a real tunnel. And it actually -- there's one each
16 for the downlink and uplink. But, basically, the tunnel is
17 going to end at your cell phone. So this bearer or
18 tunnel -- I'll write bearer. That's the technical term.
19 They're both technical terms.

20 The bearer is a tunnel that connects the user
21 equipment to the packet gateway. So you can think of it as
22 a conveyer belt. You put packets on one end. It comes
23 down to the other end. In the case of your example,
24 YouTube packets are being put in the tunnel at the packet
25 gateway, and they come out at the user equipment.

1 Q. And why does LTE use these tunnels?

2 A. The tunnels simplify the connections. And we have to
3 deal with a number of interesting problems.

4 For example, user equipment is mobile, right? I'm
5 in Marshall today. I'll be back home in Ithaca by the end
6 of the week, I hope. So they have to keep track of the
7 movement of my phone.

8 So once I've settled down, for example, right here
9 in Marshall, the tunnel simplifies the connection. The
10 network creates what's called a virtual circuit so that all
11 my phone has to do is put packets into the tunnel, and
12 they'll come out in the right direction, and vice versa,
13 coming the other direction.

14 Q. Well, what, if anything, is beneficial about putting
15 packets in a tunnel with respect to a device like a base
16 station?

17 A. Okay. So it greatly simplifies what the base station
18 has to do. It reduces the number of things that this base
19 station -- and let's try a different marker -- that this
20 base station has to keep track of. Oh, that's much better.

21 By the way, you may have heard another term,
22 eNodeB. So I'll write that in parentheses. That is the
23 LTE version of base station.

24 Q. Okay. So how does it simplify things for a base
25 station to have these packets inside of a tunnel instead of

1 the base station looking at individual packets?

2 A. Okay. So what it does is it allows the base station to
3 simply route packets that come in to the appropriate
4 outgoing tunnel. There's no need to inspect the packet.
5 It simply says, which tunnel does this packet go on, and it
6 sends it on its way in the appropriate tunnel.

7 Q. The jury has heard -- has heard some about the term
8 bearer. Is a bearer the same or different than a tunnel?

9 A. The bearer is a tunnel.

10 Q. So with respect to packets from Netflix -- or maybe
11 I've got a server that -- withdrawn.

12 Let's say there's email that needs to get to me.

13 A. Okay.

14 Q. Will there be something out on the Internet through
15 which email might come?

16 A. Yes. So email is yet another kind of server. Email,
17 there's two pieces to it. It moves from server to server,
18 and then you actually download it on to your phone or your
19 computer, however you read your email.

20 And so there will be yet another mail server.

21 Let's put it over here.

22 For example, it might be Gmail, and you will have
23 to access that to actually read your email and download it
24 to your phone.

25 Q. Can packets from YouTube and packets from the mail

1 server go into the same tunnel?

2 A. Yes. So they all are treated the same because they're
3 all data, and there's no voice here, for example, so
4 YouTube, Netflix, email server packets from the Internet
5 going through this tunnel to your phone.

6 Q. So if the packets are inside of the tunnel, how does
7 the base station know whether it's a YouTube packet or a
8 mail server packet or a Netflix packet?

9 A. It does not. All it knows is that there's a particular
10 endpoint of the tunnel to which it's routing these packets.
11 In this case, the endpoint is here.

12 Q. So is it possible -- we've heard the term quality of
13 service in this case. Is it possible for YouTube to have
14 one quality of service and the mail to have another quality
15 of service?

16 A. No.

17 Q. Okay. And is that because they'd both be on the same
18 tunnel?

19 A. That's correct.

20 Q. Okay. If you had two streams that -- just treating
21 them as packets that might want a different quality of
22 service treatment, does the base station have any ability
23 to give a quality of service treatment on a
24 packet-by-packet level?

25 A. No, it does not.

1 One piece that I didn't mention, there's a box
2 here in our core network, which has a rather opaque name.

3 It's PCRF, policy charging rules function. PCRF
4 determines what the QoS is going to be for the bearer. And
5 once that's done, we're through. That bearer has an
6 associated QoS in the form of the QCI that you've heard
7 about, and the base station can't change that.

8 Q. So whatever packets from any different applications go
9 into that same tunnel, they all get treated the same from a
10 quality of service perspective?

11 A. So long as they are data packets, that's correct.

12 Q. Okay. Just a couple more technical concepts before you
13 sit down. I wanted to talk about the concept of
14 transmission frames, and we've heard some testimony about
15 TTI's. Can you tell us about what a transmission frame is
16 in LTE?

17 A. Okay. I'll start with a small piece, the TTI. TTI is
18 transmission time interval. It is the smallest chunk on
19 which scheduling decisions are made.

20 There are 10 TTI's per frame. So we can draw a
21 frame like this, and time goes in this direction. And we
22 have this divided up into 10 -- I think that's 10 -- 10
23 TTIs'. So this one piece, that's a TTI, a transmission
24 time interval. And there are 10 of them in a frame.

25 Q. So when the Ericsson schedulers are making a scheduling

1 decision, at what time increment are they making those
2 decisions?

3 A. The Ericsson schedulers make their decisions on a TTI
4 basis. They're looking at the current TTI and determining
5 who's going to transmit and who's going to receive.

6 Q. Do they look forward into the future past the current
7 TTI?

8 A. No.

9 Q. Okay. You've drawn one frame. How do these frames
10 work in the network? Is there more than one frame? Do
11 they follow each other? What happens?

12 A. Yes. So the frames recur. Every 10 slots we start a
13 new frame. So we can call this the current frame. And
14 then there are frames that will follow. I'll draw two
15 more.

16 Q. Okay. So the top one is the current frame?

17 A. That's correct.

18 Q. And that -- that has the TTI that the scheduler is
19 currently operating on?

20 A. That's right.

21 Q. And then what are the -- what's the next lowest frame?

22 A. So we can call this the current TTI. We would call
23 this a future frame, the next frame. Both of these are
24 future frames.

25 Q. And does the Ericsson scheduler ever look out into the

1 future to reserve any resources in any future frames?

2 A. It does not.

3 Q. Last technical concept I want to ask you about at the
4 board here, and that's this concept of bandwidths that are
5 available to the uplink and the downlink schedulers.

6 I don't want to repeat Mr. Skarby's testimony that
7 he gave about the downlink and uplink schedulers having
8 separate bandwidths available.

9 My question to you is: Do you know why that is?
10 Why is it that the -- in a T-Mobile network, an FDD
11 network, why are there separate bandwidths for the
12 uplink --

13 THE COURT: Mr. Black, you're on your feet.

14 MR. BLACK: Objection. He has a question that
15 doesn't refer to --

16 THE COURT: Why don't you step to the microphone
17 at counsel table, so I can hear you.

18 MR. BLACK: Objection. If he'll just rephrase the
19 question without referring to Mr. Skarby to make clear what
20 the question is, I think that would be okay.

21 THE COURT: You're willing to rephrase your
22 question, Mr. Kubehl?

23 MR. KUBEHL: Of course. Of course.

24 THE COURT: Then let's do that.

25 MR. KUBEHL: Okay.

1 Q. (By Mr. Kubehl) So I understand there's an uplink
2 scheduler and a downlink scheduler in the base station?

3 A. That's correct.

4 Q. Okay. And is there a pool of bandwidth that is
5 available for the uplink scheduler's use?

6 A. Yes.

7 Q. Okay. Can we draw however you'd represent that?

8 A. Okay. So, again, noting that this is the wireless
9 part -- it looks like a small piece, but it's actually
10 really important. And as has been mentioned in court, very
11 expensive.

12 So what I will do is over here, I will note -- and
13 now we're going to change what's happening. This is
14 frequency. So it's the frequency spectrum of -- your radio
15 tracks across the frequency spectrum to bring in different
16 stations, for example. Different points in the spectrum
17 are used for different things.

18 To answer your question, the uplink, I believe you
19 said -- the uplink is going to have a particular part of
20 the spectrum. Let's put it over here. In the United
21 States, this is allocated by the FCC. We'll call that
22 uplink.

23 Q. So you made an analogy to a radio station. So if -- if
24 anybody remembers or has a car with an old dial where you
25 could dial across the frequencies so you could hear

1 different stations at -- transmitting at the same time, is
2 that the analogy you're drawing there?

3 A. Exactly. So within this block, there are different
4 frequencies. And so different uplink allocations can be
5 made at different frequencies, but they have to be within
6 the block. That block is what's allocated for
7 transmissions from UE's to the base station.

8 Q. Okay. And then what about the downlink scheduler, does
9 it have any pool of resources available?

10 A. Now, in this country, the downlink would be a separate
11 block. And, once again, these are particular frequencies,
12 and different frequencies within the block can be used for
13 downlink transmissions, but you can't go outside of the
14 block. You have to stay within it. And these blocks are
15 well separated. There's a gap.

16 Q. Why is there a gap there?

17 A. The FCC determined that there had to be a certain
18 difference between uplink and downlink transmission so that
19 they wouldn't interfere with each other. And this
20 distance, this amount of spectral gap has changed over the
21 years, but it's still there.

22 Q. So do the uplink and downlink schedulers that you
23 looked at in T-Mobile's network, do they share a wireless
24 bandwidth?

25 A. No, they do not. The uplink and downlink schedulers

1 are working on independent chunks of spectrum. Downlink is
2 working over here, and the uplink over here, and they have
3 nothing to share.

4 Q. Okay. You can return to your seat.

5 MR. KUBEHL: If it's all right with the Court.

6 THE COURT: It is. And if you'll move that easel.

7 Ms. Denton, do you still have the handheld mic?
8 Why don't you put it back where it was? That way you don't
9 have to sit there the rest of the day holding it.

10 All right. Let's continue, Mr. Kubehl.

11 Q. (By Mr. Kubehl) Dr. Wicker, I want to turn to the work
12 that you did in this case regarding the three asserted
13 patents. Did you review the patents?

14 A. Yes, I did.

15 Q. Did you compare the patents to the Ericsson products?

16 A. Yes, I did.

17 Q. And did you develop opinions as to whether or not there
18 were differences between the patents you looked at --
19 specifically the patent claims -- and the Ericsson
20 products?

21 A. Yes, I did.

22 Q. And did you find any differences?

23 A. Yes, I did.

24 Q. Are you going to talk about some of those today?

25 A. Yes.

1 MR. KUBEHL: Could we have Slide 5, please?

2 Q. (By Mr. Kubehl) What are we looking at here?

3 A. Okay. So once again, this is that base station or
4 eNodeB that I was talking about earlier. There are uplink
5 transmissions from the cell phone to the base station and
6 downlink in the reverse direction.

7 Q. I'd like to turn first to the '629 patent.

8 A. Okay.

9 Q. If we're talking about the '629 patent, what is the
10 accused functionality in the Ericsson base station?

11 A. Okay. That would be -- let's see if we can go to the
12 next slide, please?

13 That would be the uplink scheduler, which I've
14 highlighted here.

15 Q. All right.

16 MR. KUBEHL: Let's look at the claim language,
17 please, the next slide.

18 Q. (By Mr. Kubehl) This is Claim 1 of the '629 patent?

19 A. That's correct.

20 Q. Okay. Generally, with respect to your analysis of
21 infringement in this case, what are you asked to be -- I'm
22 sorry, what are you asked to determine when you're looking
23 at whether or not there's infringement of this Claim 1?

24 A. Okay. What I'm asked to do is to look at this claim
25 and understand what it would have meant to a person of

1 skill when this invention came about and then to determine
2 whether or not this language can be mapped on to the
3 accused product.

4 In this case, it's a method claim, so I was asked
5 to determine whether or not the accused devices actually
6 practice this method.

7 Q. Now, you've -- you have some labels A, B, C, and D.
8 Those are referring to different claim elements?

9 A. That's right. And I should have noted that I added the
10 A, B, C, and D. You won't see those in your patents. But
11 you'll see all the rest of the language. I added the A, B,
12 C, and D, so I can refer to these four steps.

13 Q. So when it comes to the infringement analysis, how many
14 of Steps A, B, C, and D have to be practiced in order to
15 infringe the claim.

16 A. They all have to be practiced. For there to be
17 infringement, every single step must be practiced.

18 MR. KUBEHL: All right. Next slide, please.

19 Q. (By Mr. Kubehl) I guess before we go here, can you
20 give the jury just a quick walk-through of Claim 1 that you
21 analyzed?

22 MR. KUBEHL: So if we could go back one slide.

23 A. Certainly. So this is a method claim once again, and I
24 know that because I see these words "a method for" at the
25 very beginning. And it tells me it's a method for

1 assigning future slots of a transmission frame to a data
2 packet for transmission over a wireless medium.

3 Okay. Now I've got my four steps.

4 The first step is applying a reservation
5 algorithm.

6 The second step is reserving a first slot for a
7 first data packet of an Internet Protocol flow, an IP flow,
8 and a future transmission frame based on that reservation
9 algorithm.

10 The third step is reserving yet again. This time
11 we're reserving a second slot for a second data packet of
12 the IP flow subsequent in time to said future transmission
13 frame -- so a later transmission frame than was used for
14 the first reservation -- based on said reservation
15 algorithm.

16 And then, finally, wherein said second data
17 packet -- the one we talked about in Step C -- is placed in
18 said second slot in an isochronous manner to the placing of
19 the first data packet.

20 Q. (By Mr. Kubehl) Okay. And what did the Court tell us
21 about what an isochronous manner is?

22 A. Isochronous means, according to the Court, consistent
23 placing in time.

24 Q. Now, in this case, if --

25 A. And I should note that that is a paraphrase. I didn't

1 have the Court's claim construction in front of me.

2 The Court provided me with a very specific claim
3 construction -- construction. I believe it's a consistent
4 time interval.

5 Q. Consistent time intervals.

6 A. Yes.

7 Q. If -- if a system were to place packets isochronous --
8 isochronously just exactly like what is shown in
9 Element (d), and it did it every single time, would that
10 system infringe?

11 A. Not necessarily. That's just one step. You've also
12 got Steps A, B, and C. They have to be practiced as well
13 for there to be infringement.

14 Q. Okay. Is there a figure in the patent that illustrates
15 the claim?

16 A. Yes. If we'll go to the next slide, this is a figure
17 that we've seen before. This is Figure 14 from the '629
18 patent.

19 Q. All right. And have you developed an
20 easier-on-the-eyes version of this figure?

21 A. Yes, I have. It's a little complicated because of all
22 of the -- the wire -- seemingly wireless connecting the
23 various pieces.

24 So what I did was I eliminated the wires in some
25 of the notations. And if we can go to the next slide, this

1 actually shows the frames and the reservations.

2 Q. Okay. So you've got at the top -- the top row here,
3 you've got labeled as current frame. What are you
4 referring to there?

5 A. That's correct. When I read the patent, it described
6 this claim in -- sorry -- this frame N as the current
7 frame. So that's the frame we're looking at right now.
8 That's the frame from which we're transmitting data right
9 now.

10 Q. All right. And then you've got in blue, future frames.
11 What is that?

12 A. That's right. So these are later frames. You can
13 think of time as running in two directions on this. We've
14 got time -- it's a little harder to write there, but there
15 we go -- time going in that direction and time running in
16 this direction as well.

17 So when we go down the chart, what we see are
18 later frames with later slots.

19 Q. So if -- if we were in a given frame, like this frame
20 N, the slots go forward in time from left to right?

21 A. That's correct.

22 Q. And then once that frame is transmitted, then you'd go
23 to the next frame, N + 1?

24 A. That's correct.

25 Q. And so on?

1 A. You'd just keep working your way down, going all the
2 way across one frame and then going to the next frame and
3 going from left to right and so forth.

4 Q. Okay. Were you here yesterday when Dr. Williams
5 testified about this figure?

6 A. Yes, I was.

7 Q. Did you agree or disagree with his assessment of
8 whether this figure showed time in two dimensions?

9 A. He didn't seem to agree that it shows time in two
10 dimensions. I think it does, and I think that's the way
11 it's described in the '629 patent.

12 Q. So what about the concept of reservations? Is that
13 shown in this figure?

14 A. Yes, it is.

15 So you noted that some of these slots -- all of
16 the slots in the current frame are dark. That means
17 they've been reserved for someone's transmission. Later in
18 time, we see there are reservations, for example, here.
19 This is a reservation in a future frame. This is another
20 reservation in a future frame and so on.

21 So the darker blues, for example, correspond to
22 reservations in future frames.

23 Q. Is this concept of successive frames and reservations
24 analogous to anything that we might be more familiar in our
25 lives?

1 A. Yes. I thought a good analogy would be a calendar
2 because a calendar has time also going in both directions.

3 Q. So how would this be analogous to the frames in the
4 slots?

5 A. Okay. So we could think of, for example, the current
6 week as a frame. And, of course, today is the 6th. That's
7 our current slot. And future weeks would be future frames.

8 So, for example, next week would be another frame,
9 another week, and two weeks from now, yet another frame and
10 so on. So once again, we have time going in two
11 directions. It goes this way, then it goes down. I'll
12 just put a "T."

13 Q. Okay. Turning back to the '629 patent, what did the
14 '629 patent recognize about voice packets?

15 A. Okay. The '629 packet recognized that voice packets
16 arrive for transmission at a regular spacing, and there's a
17 reason for this.

18 If we take a device like this -- this iPhone, when
19 you talk into your iPhone, your voice is converted into 0s
20 and 1s. It's digitized. Now, those 0s and 1s are put into
21 packets, which are then generated every 20 milliseconds.
22 And to give you an idea, that's 50 times a second.

23 So when you're having a conversation on your
24 phone, your phone is generating 50 packets a second. And
25 it's very predictable. We know when those packets are

1 going to be generated. It's like clockwork.

2 Q. And so how does the '629 patent use that concept in
3 terms of where packets should be placed in frames?

4 A. Okay. So what the '629 patent recognized was we've got
5 consistent generation of packets, so we can plan ahead.

6 What we can do is reserve slots at a consistent
7 timing. I can transmit a voice packet there in Slot 6, I
8 can transmit a voice packet in the next frame, Slot 6, and
9 then in the next frame Slot 6, and so on.

10 And so what I'm doing is I'm taking advantage of
11 my knowledge that these packets are going to be generated
12 every 20 milliseconds to plan ahead, to reserve slots in
13 the future.

14 Q. And can packets be placed at regular intervals in
15 frames without using reservations?

16 A. Certainly.

17 Q. Does the '629 patent -- does that patent cover all ways
18 of placing packets at equal intervals?

19 A. No. As we saw in the claim, it's really specific.

20 It's got to have every step, which means you've got to
21 reserve a slot in a future frame and then a second slot in
22 a frame after that. So that was Steps (b) and (c).

23 Q. Okay. If we go to our next slide, I think you've
24 already told us about what you've shown here, but you've
25 got an oval on this slide. What is that showing?

1 A. Okay. What that shows is reservations that are
2 consistently spaced. So this is the third slot in the
3 current frame here, but in the next frame, $N + 1$, I've also
4 reserved the third slot and in this frame and in this frame
5 and so forth.

6 I've got reservations for the next one, two,
7 three, four, five, six, seven frames, and they are equally
8 spaced. They're consistently spaced. So, again, spaced in
9 an isochronous manner.

10 Q. Now, you -- you told us that there's a way to end up
11 with packets that are equally spaced, and you don't
12 necessarily have to have a reservation. Can you give us an
13 analogy of how that would work?

14 A. Certainly. So what we're seeing on the screen in
15 Figure 14 is reservations that are made ahead of time.

16 But a lot of time, we'll have consistent spacing,
17 even when there's no reservations at all, and so the
18 analogy I used was of a -- getting reservations at a
19 restaurant or not, as the case may be.

20 Q. Okay. So after analyzing the Ericsson base stations in
21 the T-Mobile network, have you come to a conclusion as to
22 whether or not those base stations perform each element of
23 Claim 1 of the '629 patent?

24 A. They do not. As -- as we've seen and as I'll describe,
25 the Ericsson base stations do not reserve slots in future

1 frames. It just doesn't happen.

2 Q. Okay. Could you please relate that to the claim
3 language?

4 MR. KUBEHL: Next slide. Oh, we might have passed
5 by the slide. There we go.

6 A. So what I've just referred to is reserving a first slot
7 for a first data packet in a future transmission frame and
8 reserving a second slot for a second data packet in a
9 transmission frame subsequent in time to said future
10 transmission frame, an even later transmission frame.

11 So there has to be the reservation of two slots,
12 one in a future frame, and then one in a frame after that.

13 Q. (By Mr. Kubehl) Thank you.

14 And how does the Ericsson base station work?

15 A. All it -- what it does is it looks at the current slot,
16 the current transmission time interval, and it has a
17 competition. It decides who gets to transmit in this
18 current slot, and that's what it does.

19 Q. How do you know that to be true?

20 A. A couple of ways. First, I studied the source code,
21 those instructions that determine how the system works.

22 And then I looked at a number of documents that
23 summarized what the Ericsson base station does. There was
24 also deposition testimony from Ericsson engineers where
25 they described how the system works.

1 Q. Okay.

2 MR. KUBEHL: Let's go to the next slide, 17,
3 please.

4 Q. (By Mr. Kubehl) What are we looking at here?

5 A. Okay. This is one of the documents that I mentioned.
6 It's Defense Exhibit 282. It's a document called Battery
7 Saving for DBS/SABE.

8 Q. How does that relate to the accused product?

9 A. Okay. So what this is doing is describing how
10 Ericsson's scheduler works.

11 This DBS-SABE is a rather hefty acronym, but it's
12 delay based scheduling with service aware buffer
13 estimation. So that is the algorithm that Ericsson's base
14 stations use to do scheduling.

15 Q. What did you find important in this document?

16 A. Okay. What this -- if we can go to the next slide.

17 What this showed me was that, quite simply,
18 scheduling is done by the delay based scheduler, no
19 resource allocation for future TTI's. There's no
20 scheduling ahead. We only look at the current TTI, and we
21 don't focus on future TTI's.

22 And so what this told me is quite simple.
23 Ericsson's accused products do not reserve future slots.

24 Q. If the jury wanted to find this later, which exhibit is
25 it?

1 A. It's DX -- which I think means defense exhibit -- 282.

2 Q. So can you help us understand how this delay based
3 scheduling works? If it doesn't use future reservations,
4 how does it work?

5 A. Certainly.

6 If we can go to the next slide, please.

7 This is Ericsson's scheduler -- slightly
8 simplified, but it captures the important concepts.

9 We have a series of competing phones. These
10 phones have data, and they're ready to transmit.

11 There is then a scheduling competition that's
12 held.

13 Now, this scheduling competition takes a number of
14 things into consideration, but, remember, it's a delay
15 based scheduler, DBS.

16 So one of the things it's focussed on is how long
17 has that data been waiting? So based on the amount of time
18 the phones have been waiting, they're ranked. And the top
19 phones become the competition winners. And they now have
20 access to the current TTI.

21 Q. Okay. So is the -- the phone that wins the
22 competition, is that just selected at random?

23 A. No. No. Once again, these phones have to satisfy a
24 number of criteria to begin with, but after that, they're
25 all ranked. And they're ranked according to how long the

1 data that they have has been waiting for transmission.

2 Q. Now, what was the date of the document that you looked
3 at that had this information you got in the bottom, no
4 resource allocation for future TTI's?

5 A. Okay. So this is the document here. It was Defense
6 Exhibit 282, if I remember correctly -- yes. So this is a
7 2012 document.

8 Q. And why -- why, if at all, was that significant to you?

9 A. That was significant because this lawsuit was started
10 in 2017. So this document was prepared long before there
11 was any concern about a lawsuit.

12 And so what that tells me is that the details,
13 and, in particular, the comments about new future
14 reservations, those were done with -- just thinking about
15 the engineering of the system, as opposed to someone's
16 patent claims.

17 Q. How does the Ericsson source code compare to what
18 you've described here?

19 A. The Ericsson source code does exactly this. There's a
20 lot more detail, but basically what we see in the code is
21 determining who's competing, holding the scheduling
22 competition, and then setting them up -- the winners up to
23 transmit in the current TTI.

24 Once again, no reservations in future slots, in
25 future TTI's. The source code does not show any

1 reservations.

2 Q. Now, you've -- you're using this term "scheduling
3 competition." Is that a term that you made up for this
4 lawsuit?

5 A. No. In fact, I think Dr. Williams was the first person
6 to use the -- the phrase.

7 MR. KUBEHL: Go to the next slide, please.

8 Q. (By Mr. Kubehl) Were you here yesterday when
9 Dr. Williams talked about that term, "scheduling
10 competition"?

11 A. Yes, I was.

12 Q. What did he have to say about it?

13 A. Okay. He was asked: So for each slot, the accused
14 Ericsson uplink scheduler holds a scheduling competition
15 for receiving the uplink grant for resources?

16 That's right -- that's correct.

17 And the term "scheduling competition," that's a
18 term that you used in your own expert report, correct?

19 And he said: Absolutely.

20 And you weren't responding to anyone's argument?

21 No, those were his words.

22 Q. So how often does the Ericsson uplink scheduler hold
23 this scheduling competition?

24 A. Okay. It's every TTI, and a TTI is one millisecond, so
25 that's a thousand times a second.

1 Q. So in the delay that I just took to ask that question,
2 there were about 4,000 scheduling decisions made?

3 A. Yes. At a base station like the one that's behind the
4 bank on the square.

5 Q. How does the Ericsson uplink scheduler decide which
6 phone wins the competition?

7 A. Okay. So what it does is it ranks those phones,
8 including factors like how long they've been waiting. And
9 once the ranking is determined, those who are at the top
10 have an opportunity to transmit.

11 Q. Okay. And will there be just one winner of the
12 competition?

13 A. No, potentially there could be several because of the
14 way that LTE works -- I think there's been a little bit of
15 talk about that.

16 It uses something called orthogonal frequency
17 division multiplexing. Because of the way that works, you
18 can have several people transmit at the same time. So in
19 LTE, lot -- several people can use the same TTI at the same
20 time.

21 Q. Okay. So in -- in the parlance of the patent, if you
22 used the word "slot" -- let's call a TTI a slot for
23 purposes of this question -- would the Ericsson base
24 station even allocate -- sorry.

25 Would the Ericsson base station be limited to

1 allocating resources for only one phone to a given slot?

2 A. No.

3 MR. KUBEHL: Let's go to the next slide.

4 Q. (By Mr. Kubehl) So you talked about a restaurant
5 analogy you had made. Can you tell us about that?

6 A. Certainly. The restaurant analogy is as follows.

7 If you've got a restaurant that doesn't take
8 reservations, what happens is you end up on busy nights
9 with a line of people. And if there's a table available,
10 that table is going to go to whoever has been waiting the
11 longest.

12 So in many ways, this scheduling competition,
13 based on delay, is the opposite of a reservation. You
14 don't have a reservation, so you're going to wait. But
15 whoever is waiting the longest, these two, are going to get
16 the table that's available.

17 Q. If you wanted the jury to take away one thing of what
18 we've talked about so far on the '629 patent, what would
19 that be?

20 A. I think the one thing to remember is that the accused
21 base stations clearly do not reserve slots ahead in time.

22 It's always focused on the current transmission
23 time interval. And so because of that, it cannot practice
24 these asserted claims. It cannot reserve ahead of time.
25 It simply doesn't happen.

1 Q. So look -- looking at the figure you've got here,
2 you've got a bunch of people in line. Why isn't that a bad
3 thing? I mean, do I really want delay on my phone if I
4 have to wait in these lines? Why is that such a good
5 design?

6 A. Okay. It's a good design -- it does look like people
7 are waiting, and that doesn't sound good, but there are
8 situations in cellular in which if I try and give you an
9 assignment ahead of time, when your time comes to use that
10 resource, you might not be able to.

11 So, for example, if I reserved a phone several
12 slots ahead of time, by the time those slots came around,
13 that phone might have a really bad channel. And so it
14 wouldn't be able to use this slot, and this would lead to
15 retransmission requests. It would lead to inefficient use
16 of resources.

17 And so this attempt to plan ahead reserving slots
18 ahead of time would actually lead to worse performance
19 because we don't know what the channel is going to look
20 like in the next frame or the frame after that.

21 So we focus on the current frame and the current
22 channel, and then do it again and again and again a
23 thousand times a second.

24 Q. Okay. So that problem, you identified it, it
25 sounds like you're kind of locked into using that

1 future frame. Is there any problem with being -- with
2 other phones being locked out?

3 A. That is a problem as well. If I have allowed people to
4 reserve ahead of time, if I reserve slots ahead of time,
5 and those people, because of a bad channel, can't use it,
6 well, the slot's already reserved. Other people can't use
7 it.

8 And so what we have is a situation in which other
9 people aren't able to transmit, you can't transmit. It's
10 just not efficient.

11 Q. Are there sort of emergency level signals that need to
12 be communicated in LTE that's sort of a highest priority?

13 A. There are higher priority signals. I mentioned
14 retransmission requests. Basically, what happens, if
15 you've got a bad transmission, you can ask to have it sent
16 again.

17 That's why, when you look at an image on the
18 Internet, it looks so good. There may have been lots of
19 errors in transmission, but those packets were
20 retransmitted. They were sent again until they were
21 received correctly.

22 That takes up resources, but it's important that
23 it be done. So the requests for retransmission have very
24 high priority, higher priority than your voice, in fact.

25 Q. So what's problematic for those super high priority

1 transmissions if you're using a system that reserves future
2 frames?

3 A. Okay. So one of the things that happens when you're
4 reserving slots ahead of time, the people may have a bad
5 channel, and they can't transmit. They're going to have to
6 ask for a retransmission.

7 So you're going to have a lot more retransmission
8 requests if you're trying to schedule ahead of time, and
9 that further bogs down your channel, and you can't support
10 as many people.

11 Q. Have you seen any evidence in this case that Ericsson
12 looked at the concept of future reservations?

13 A. Yes, I did.

14 Q. And what did Ericsson decide about that?

15 A. Ericsson looked at it and considered it, this idea of
16 reserving ahead of time, and said, no, it's a bad idea, and
17 for the reasons that I've discussed.

18 Q. And what time period was that?

19 A. They looked at that actually going back into the 2000s.
20 I believe 2007/2009.

21 MR. KUBEHL: Could we have DX-277, please.

22 Q. (By Mr. Kubehl) What is this document?

23 A. Okay. This is a document that describes uplink
24 scheduling for Voice over IP in LTE, and I'll note it's
25 2007.

1 Q. Okay. And what's discussed in this document?

2 A. It's discussing various types of scheduling for voice
3 in LTE.

4 Q. Is there a discussion of the idea of reserving future
5 slots?

6 A. Yes, there is.

7 Q. What do they say about that idea?

8 A. They say it's a bad idea, because basically it will
9 lead to channel congestion from retransmission requests.

10 People that are reserving slots ahead of time may
11 have a bad channel, they can't transmit, or it's a bad
12 transmission, and that leads to retransmission requests.

13 MR. KUBEHL: Can we go to Dr. Wicker's Slide 28,
14 please.

15 Q. (By Mr. Kubehl) What are you showing here?

16 A. Okay. This is from that document. It's Defense
17 Exhibit 277.

18 And what it's saying is the main reason why the
19 capacity of reserving ahead is limited is that the high
20 HARQ, hybrid ARQ retransmission rate increases the total
21 number of retransmissions and causes some cells to become
22 grant channel limited. If there's too many transmissions,
23 it becomes bogged down.

24 And it goes on to say: Because of these results,
25 it is not recommended to deploy reserving ahead of time for

1 the LTE uplink.

2 Q. Dr. Wicker, did IV's experts conduct any testing of the
3 actual Ericsson system?

4 A. No, they did not.

5 Q. Did you ask that any testing be done?

6 A. Yes, I did.

7 Q. Why did you have that testing done?

8 A. Well, I thought it would be helpful to show the actual
9 behavior of the system in a lot of different circumstances,
10 and I thought it would make it clear how the system
11 actually works.

12 Q. Okay.

13 MR. KUBEHL: Could we go to Slide 22, please.

14 Q. (By Mr. Kubehl) That's a lot of color. What are you
15 showing here?

16 A. Okay. And I guess it's not as clear. What it's
17 showing is the behavior of a lot of phones. Each one of
18 these lines -- and I'll just pick one out here across the
19 bottom. There's a line down there, okay? Each one of
20 these lines corresponds to a particular cell phone that's
21 being tested.

22 Now, this axis tells us how long the phone has to
23 wait before its next grant of transmission. So this tells
24 you what the transmission intervals look like over time.

25 This axis is likelihood, okay? So it goes from

1 zero -- it's not going to happen -- to a hundred percent --
2 happen every time. 50 is a coin flip.

3 And so what we see is that the actual separation
4 between transmissions is literally all over the place.

5 We have some phones -- these phones up here,
6 these lines show a very high likelihood of being able to
7 transmit right away.

8 Let me just pick a point -- take this -- oops.
9 Let me start that over again.

10 I'll pick this point right here, and if we go
11 down, it corresponds to 10. So there is a more than 90
12 percent likelihood that that particular phone only had to
13 wait 10 milliseconds before its next transmission, whereas
14 down here, this one is having to wait 40 milliseconds or
15 more before its next transmission.

16 So the point here is that phones are getting
17 grants at different times, and what that told me was there
18 are no reservations.

19 If people had reservations, they'd be locked into
20 a particular time, but instead, because of the way the
21 system works, we have allocations literally all over the
22 place.

23 Q. What would the result look like if -- in a system that
24 actually reserves slots every 40 milliseconds so they were
25 guaranteed?

1 A. Okay. So instead of seeing all those different lines,
2 we would see zero percent likelihood of transmitting until
3 you got to 40 milliseconds, and then it would jump up to a
4 hundred percent likelihood of transmitting at 40
5 milliseconds.

6 So if everyone was reserving slots ahead of time
7 and they were reserving them 40 milliseconds ahead,
8 everyone would be transmitting 40 milliseconds ahead. If
9 you got a reservation, you're going to get your table at a
10 particular time.

11 Q. Okay. Dr. Wicker, you were here yesterday when
12 Dr. Williams testified about his theory on reservations,
13 and he presented a timing diagram?

14 A. That's correct.

15 Q. First of all, do you agree or disagree with him that
16 Ericsson makes any reservations of any future frames?

17 A. I do not agree. There are no reservations in future
18 frames.

19 Q. Even if you accepted his theory that there was some
20 reservation made, would the Ericsson base station meet
21 his -- meet these claims under his theory?

22 A. No. In his theory, the reservation was for the current
23 frame.

24 If we can go to the next slide, I think I showed
25 that. No. That's not what this says. Okay.

1 MR. KUBEHL: Oh, we can -- let's back up to that
2 slide. 24, please.

3 Q. (By Mr. Kubehl) Okay. So you looked at Dr. Chrissan's
4 source code report, right?

5 A. That's correct.

6 Q. And you recall seeing that Dr. Chrissan put together
7 this timing diagram?

8 A. That's right. This is from his expert report.

9 Q. And he was showing one sequence of events that he could
10 possibly happen?

11 A. That's right. This is quite a complicated diagram, but
12 basically what it's showing is that we can have -- this is
13 a grant -- oops. It's a little offset there. I'll make it
14 work. That's a grant right there, and there's the actual
15 transmission. Here's a grant. There's a transmission --
16 there we go -- and so forth.

17 And so what he's showing is a lot of different
18 things that are happening in this scheduler that lead to
19 actual transmissions. So, again, the dark blue, those are
20 actual transmissions.

21 Q. Okay. And this would be for if you -- this would be if
22 you took one particular phone that was actually getting
23 grants at the 40 milliseconds, and you sort of looked back
24 in time at what had happened to get you there?

25 A. Yes, although with the phone they're showing here, the

1 grants aren't equally spaced.

2 Q. Okay.

3 A. They're not at 40 milliseconds.

4 Q. I guess my question was, is this like all happening at
5 the same time, or is this kind of looking back in history
6 of what ended up happening to get you to the 80-millisecond
7 point?

8 A. Oh, I see. Yes. So what this is showing in time is,
9 once again, going in this direction. It's showing a lot of
10 things that can happen to bring us to this point of 80
11 milliseconds, which I believe is what Dr. Williams focused
12 on yesterday.

13 Q. And did Dr. Chrissan, who reviewed the source code that
14 you reviewed, did he identify anything on here as a
15 reservation?

16 A. No, he did not.

17 Q. And then where did that concept come from?

18 A. That was brought in by Dr. Williams.

19 MR. KUBEHL: Could we go to the next slide?

20 Q. (By Mr. Kubehl) So is this Dr. Williams's slide adding
21 his concept of reservations?

22 A. That's right. If -- you know, you compare this to the
23 previous slide, you'll see that Dr. Williams added the
24 Reserve 3 and Reserve 4.

25 Q. Okay. And so if we sort of go -- play in this world

1 that we agree with him that there's a reservation where he
2 says there's a reservation, were you here yesterday when he
3 testified as to under his theory where the reservation
4 actually is made?

5 A. Yes. He said and he looked at -- oh, there we go.
6 That -- that's helpful.

7 So what he said was the reservation is actually
8 made right there where that blue line -- that light blue
9 line.

10 Q. And at what time was that?

11 A. 81 milliseconds.

12 Q. Okay. And then what did he testify would have been the
13 timing of the slot that that reservation would have
14 corresponded to?

15 A. Okay. That would have been right here.

16 Q. Okay.

17 A. With a 4-millisecond difference.

18 MR. KUBEHL: And can you go to the next slide,
19 please?

20 Q. (By Mr. Kubehl) What are we looking at here?

21 A. Okay. This is Dr. Williams's testimony from yesterday.
22 And you -- you asked him: Have I indicated correctly on
23 this slide where the timeline you contend the reservation
24 would be made for Claim Step 1(c)?

25 That's the second reservation step.

1 And he said: As I just testified, in my
2 deposition, I said it -- that the reservation was made and
3 complete at 81.

4 Okay. And that's what I showed in the previous
5 slide.

6 Question: The slot that you believe has been
7 reserved is at Time 81, correct?

8 Yes.

9 And is that -- would you agree that that's not in
10 the future with respect to Time 81?

11 And he said: Yes.

12 MR. KUBEHL: So if we can go one slide back to 26.

13 Q. (By Mr. Kubehl) If you accept his testimony and his
14 theory that there was a reservation made at Time 81 for the
15 slot that occurs at Time 81, does that meet the claims?

16 A. It does not because even if you take this as a
17 reservation, it's not. But if you take it that way, the
18 corresponding transmission is in the same frame. It's not
19 a reservation in a future frame. It doesn't satisfy
20 Step 1 or Step -- or, sorry, Step B or Step C. It is not a
21 reservation in a future frame or a reservation in a frame
22 even after that.

23 MR. KUBEHL: Let's go to the claim language at
24 Slide 29, please.

25 Q. (By Mr. Kubehl) So you talked about Step B and Step C.

1 Summarize for the jury, if you could, your opinion as to
2 whether or not the Ericsson base station does or does not
3 meet Steps B and C.

4 A. Okay. What I've shown is that the Ericsson base
5 stations do not make reservations in the future.

6 They deal with the current transmission time
7 interval. And because of that, they do not practice
8 reserving a first slot in a future transmission frame.

9 They do not practice reserving a second slot in a
10 transmission frame subsequent in time to the future
11 transmission frame, the previous one. So Steps B and C are
12 not practiced.

13 Q. So Step B requires a reservation one frame in the
14 future.

15 Step C requires a reservation two frames in the
16 future?

17 A. That would be an example. Step B simply says: A
18 future frame.

19 And then Step C says: After that.

20 Q. Two or more frames in the future?

21 A. Exactly.

22 Q. And the reservation, if we accepted it as a reservation
23 that Dr. Williams identified, would have been how many
24 frames in the future?

25 A. It would have been zero frames in the future. It would

1 have been the current frame. And so it could not satisfy
2 Step B or C because it's not in the future.

3 Q. There's -- there's an assertion that Claims 1 and 4 of
4 the '629 patent are infringed. Claim 1 is what we call an
5 independent claim; is that right?

6 A. That's right.

7 Q. And what's Claim 4?

8 A. Claim 4 is a dependent claim which means that it
9 includes everything in Claim 1, plus some additional steps.

10 Q. And so if you don't infringe Claim 1, is there any need
11 to look at Claim 4 for infringement?

12 A. No, because you can't practice everything in Claim 4 if
13 you don't practice everything in Claim 1.

14 Q. What's your opinion as to whether or not the Ericsson
15 LTE base station, as used in the T-Mobile network, does or
16 does not infringe Claims 1 and 4 of the '629 patent?

17 A. The accused Ericsson base stations do not practice
18 Claims 1 and 4. They do not infringe.

19 Q. Okay. We'll move to the '206 patent.

20 Generally, what's the '206 patent about?

21 A. Okay. It's about quality of service, ways to apply
22 quality of service to packets.

23 Q. This is the asserted Independent Claim 109, correct?

24 A. That's right.

25 Q. Is that the only independent claim that's asserted?

1 A. Yes.

2 Q. There are some dependent claims asserted off of 109,
3 correct?

4 A. That's right.

5 Q. If -- if the jury were to find that Claim 109 is not
6 infringed, can any of the dependent claims be infringed?

7 A. No. The same thing applies. Those dependent claims,
8 the later claims, they include all of 109. And so if 109
9 is not practiced, you can't practice the dependent claims.

10 Q. Okay. I don't want to get ahead of ourselves. Please
11 explain to the jury what this claim requires.

12 A. Okay. So, once again, it's a method claim. So it's
13 got a series of steps -- in this case two steps -- that
14 have to be practiced. It's a method for scheduling packets
15 that includes classifying a plurality of packets according
16 to end-user quality of service requirements of those
17 packets.

18 And then scheduling the plurality of packets for
19 communication in either the upstream or the downstream
20 direction.

21 Q. Dr. Wicker, have you analyzed the Ericsson LTE base
22 stations as they're used in the T-Mobile LTE network to
23 determine whether those base stations practice each element
24 of Claim 109?

25 A. Yes, I have.

1 Q. What did you conclude?

2 A. They don't. What I found first and foremost was that
3 the accused base stations do not implement end-user quality
4 of service requirements. What they implement is network
5 quality of service requirements, which is different.

6 Q. Okay. Any other reasons that you're going to express
7 today?

8 A. Yes. There's one other reason. This classifying a
9 plurality of packets, that's a packet-by-packet
10 classification.

11 As I've already shown, that doesn't happen. The
12 quality of service is associated with the tunnel, not
13 packets.

14 Q. All right.

15 MR. KUBEHL: Next slide, please.

16 Q. (By Mr. Kubehl) Just to orient the jury, what
17 particular functionality in the base station is accused in
18 this patent?

19 A. Okay. In this case, we're focused on the downlink
20 scheduler. Again, the downlink is the base station to the
21 user equipment.

22 Q. And is the particular feature called the QoS aware
23 scheduler?

24 A. Yes.

25 Q. So I want to start with the claim element you

1 identified as end-user QoS requirements. What are those?

2 A. Okay. End-user quality of service requirements are
3 quality of service requirements requested by the end-user,
4 what the end-user -- the end-user's equipment thinks would
5 be appropriate as a quality of service.

6 Q. And can you generally give the jury a practical example
7 of how end-user quality of service might impact them?

8 A. Certainly. So quality of service is -- it's actually a
9 set of parameters that dictate how a packet is transmitted
10 and how it's processed. And so it includes things like
11 delay. How long does it take that packet to get from where
12 it's transmitted to -- to your phone?

13 It's also variations in delay, something called
14 jitter. It's error rate -- how many errors occur during
15 that transmission and so forth.

16 So now, let's suppose that you are listening --
17 or, sorry, watching a movie on your cell phone, and you're
18 downloading it from Netflix.

19 Now, an end-user requirement might be I would like
20 to watch this movie, and I don't want any delays that are
21 so great that the screen freezes. You may have watched a
22 movie over the Internet or over your phone where the screen
23 freezes. Okay. That means there's too much delay. The
24 Internet could not keep up -- the system could not keep up
25 with your phone -- your movie.

1 And so that would be an example of something a
2 user might want to avoid. So they might say, I want those
3 packets fast enough so the screen doesn't freeze during my
4 movie.

5 Q. Does the Ericsson base station in T-Mobile's network
6 use end-user QoS requirements?

7 A. No, it does not.

8 Q. How do we know that?

9 A. There are a number of reasons. I studied a number of
10 documents. I looked at standards, and I looked at, again,
11 software and related documents.

12 Q. What does the LTE standard say about whether the
13 QoS requirements should be end-user QoS requirements or
14 network QoS requirements?

15 A. Well, if you go to the next slide, this is part of the
16 LTE standard. It's Plaintiff's Exhibit 1014. The standard
17 is a big document. It's got a lot of subparts to it.

18 This particular piece is from 36-300. That's a
19 piece of the standard. And what it says is QoS parameter
20 values are assigned by the network. Not the user, they're
21 assigned by the network.

22 And further on, it reinforces the point. QoS
23 parameter values are always assigned by the EPC. We saw
24 the EPC when I was drawing the diagrams. That's the
25 evolved packet core.

1 Q. And in T-Mobile's network, who owns the EPC?

2 A. The EPC is owned by T-Mobile.

3 Q. What's the significance of the fact that the document
4 says the QoS parameter values are always assigned by the
5 EPC?

6 A. Well, the "always" means that there will be no end-user
7 quality of service requirements. And so that step in the
8 claim we just looked at is not practiced.

9 Q. Did Ericsson, in the LTE standardization process,
10 express any views as to whether or not -- as to whether
11 end-user quality of service should be used or instead
12 network quality of service?

13 A. Yes. Ericsson actually submitted a proposal -- if we
14 can look at the next slide, this is an Ericsson LTE
15 proposal. It's Defense Exhibit 236.

16 And what they proposed -- this diagram is
17 complicated. What it's doing is it's describing initiating
18 a bearer. We talked about bearers. That was that tunnel
19 I showed you.

20 And what it shows is that in this request for
21 resources here, the QCI is part of the request coming from
22 the network. It doesn't come from the user equipment,
23 which is over here, instead, the QCI, the quality of
24 service that's part of the requested resources comes from
25 the network. And that was what Ericsson proposed for LTE.

1 Q. And then how did the LTE network end up evolving?

2 A. This is what was adopted. The QCI is established by
3 the evolved packet core through something that we talked
4 about, the policy charging rules function.

5 Q. So in the Ericsson base station, with respect to QoS,
6 is Ericsson using its own idea of network quality of
7 service or someone else's idea of end-user quality of
8 service?

9 A. It's using its own idea. It's using the -- the network
10 defined QoS that Ericsson suggested in this proposal.

11 Q. Were you here yesterday when Dr. Williams testified
12 about what kind of QoS requirements are used in the
13 T-Mobile network?

14 A. Yes.

15 Q. And what did he have to say about that?

16 A. Well, Dr. Williams was asked: T-Mobile -- you asked
17 Dr. Williams: T-Mobile uses its own network QoS
18 requirements, not end-user QoS requirements, correct?

19 And Dr. Williams said: Yes.

20 Q. Is there any dispute about this issue, as far as you
21 can tell?

22 A. No.

23 MR. KUBEHL: Slide 36.

24 Q. (By Mr. Kubehl) Please summarize, if you would, for
25 the jury your opinion as to whether or not the Ericsson

1 base station does or doesn't use end-user quality of
2 service requirements.

3 A. Okay. So the first step of Claim 109 calls for
4 classifying a plurality of packets according to end-user
5 quality of service requirements.

6 The accused base stations don't use end-user
7 quality of service requirements. This step is not
8 practiced, so the claim is not infringed.

9 Q. Do we need to go any further than this to find
10 non-infringement?

11 A. No. This step is not practiced, therefore, the claim
12 is not infringed. That's it.

13 Q. You did promise the jury you had a second argument.
14 Can you briefly tell them what the second basis would be
15 based on the classifying -- based on the QoS requirements
16 of the plurality of packets?

17 A. Yes. So this -- actually, if we can leave it where it
18 was, please.

19 What the claim calls for is classifying a
20 plurality of packets. And those -- that plurality of
21 packets -- that classification is a packet-by-packet
22 classification.

23 So it calls for the base station to look at each
24 packet and say, ahh, this needs a certain quality of
25 service based on its contents.

1 And as we discussed, that doesn't happen. The
2 quality of service is established by appointing it to the
3 bearer before any data even comes. So when the data starts
4 to show up, quality of service is already determined, and
5 it's associated with that tunnel that I drew.

6 Q. So looking at this claim language, end-user quality of
7 service requirements associated with what? What does the
8 claim say?

9 A. Can you ask that question again?

10 Q. I'm sorry. The end user quality of service
11 requirements are of what?

12 A. Oh. They're of said plurality of packets.

13 Q. And the quality of service requirements that the
14 Ericsson base station uses are of what?

15 A. They are of the bearer, the tunnel.

16 Q. And do you have documents that would help us see that?

17 A. Certainly.

18 If we can go to the next slide, please.

19 Okay. This is an example -- we've already seen
20 it. It's from Defense Exhibit 236. And this is where I
21 showed you that the network determines the quality of
22 service. But continuing on, this is a network-initiated
23 bearer establishment. It's where that tunnel is set up,
24 and all those packets are going to flow through.

25 And so note that this bearer -- this IP bearer is

1 established with a quality of service before any data even
2 flows. So the QoS is associated with the bearer, not the
3 packets.

4 Q. Okay. Can you please summarize for us your opinion as
5 to whether or not the Ericsson LTE base station, as it's
6 used in the T-Mobile network, would or would not infringe
7 Claim 109 of the '206 patent.

8 A. Okay. So the first step of Claim 109 calls for
9 end-user quality of service requirements, and so I've shown
10 you that Ericsson doesn't do that. LTE doesn't do that.
11 It's always a network quality of service requirement.

12 Furthermore, the QoS isn't attached to individual
13 packets, it's instead tied to the bearer. So there's no
14 classification of packets on a packet-by-packet basis to
15 apply QoS. Instead, the QoS is associated with the tunnel.

16 And so since that first step is not practiced, I
17 put a big X there. Claim 109 is not infringed.

18 Q. And since, in your opinion, Claim 109 is not infringed,
19 can any of the dependent claims be infringed?

20 A. No.

21 Q. Okay. Let's move to the last patent, the '517 patent.

22 Did you analyze whether the Ericsson base station
23 infringes or does not infringe the '517 patent?

24 A. Yes, I did.

25 Q. And what -- what was your conclusion?

1 A. Okay. So I concluded that this claim is not infringed
2 by the Ericsson base station.

3 Q. All right. Can you start by giving us one of the
4 reasons you found to be -- that there was a difference?

5 A. The claim, once again, is a method, and it's a method
6 with several steps. Every step calls for something called
7 customer premises equipment, CPE for short, CPE station,
8 CPE station, and so forth throughout the claim.

9 There are no CPE stations in the accused network,
10 or at least there are none accused in this case. So these
11 steps can't be practiced.

12 Q. What definition of CPE station did you use?

13 A. The Court told me on how to interpret that.

14 Q. And what is that definition?

15 A. Okay. The Court's construction was to -- for CPE was
16 for devices residing on the premises of a customer and used
17 to connect to a telephone network, including ordinary
18 telephones, key telephone systems, PBX's, videoconferencing
19 devices, and modems.

20 Q. And what do these devices, including ordinary
21 telephones, key telephone system, PBX's, videoconferencing
22 devices, and modems look like?

23 A. Okay. They are all devices that reside on the premises
24 of a customer.

25 And if we can look at the next slide, what we see

1 is they take a number of different forms. Here we have an
2 ordinary telephone that you would plug into the wall. PBX,
3 that's private branch exchange. You might have such a
4 thing, at least one of this size for a medium to small size
5 company. And then other kinds of devices as well that are
6 associated with the premises.

7 In other words, they wouldn't be something that
8 you would carry around. They would be something that you
9 would find, for example, in your home or in a small
10 business.

11 Q. Does the use of the term "customer premise" -- or CPE
12 station associate this technology with any particular 1G,
13 2G, 3G, 4G technology?

14 A. No, it does not. The term actually emerged quite
15 early, actually before the world of cellular. It was used
16 when I was at Bell Labs in 1981, 1982, and it had been in
17 use for a long time.

18 Q. So it's -- it's old technology?

19 A. Yes.

20 Q. And, again, what are the -- what are the accused --
21 first of all, this is method claim, right?

22 A. That's right.

23 Q. Is it still about what the base station is doing?

24 A. That's right.

25 Q. In other words, are there any steps in the claim that

1 the CPE device is affirmatively supposed to do?

2 A. The communication -- if we go back and look at the
3 claim, what we see is that the base station is
4 communicating with the CPE station.

5 Q. Sending signals to it?

6 A. That's right. So, for example, we see analyzing
7 reservation requests for packets to be communicated in the
8 uplink direction from the CPE, elsewhere the at least one
9 CPE station transmitting in the uplink direction. So it
10 does require some -- the presence of a CPE and for the CPE
11 to do certain things.

12 Q. Okay. What are the devices that are identified as the
13 CPE stations that would receive these signals?

14 A. They're -- the accused devices are cell phones, LTE
15 user equipment.

16 Q. Are those CPE devices, in your opinion?

17 A. No, they're not.

18 Q. Why not?

19 A. They are not devices that reside on a customer
20 premises. So if you're familiar with CPE, you would not
21 think of these cell phones as being CPE. Cell phones are,
22 instead, something that are personal devices that one
23 carries with oneself.

24 MR. KUBEHL: All right. Slide 45, please.

25 Q. (By Mr. Kubehl) What are you showing on Slide 45?

1 A. Okay. So what this shows is that if the accused
2 devices are not CPE's, then they can't satisfy -- actually
3 they can't satisfy any of the steps.

4 But, for example, if we take a look at the first
5 step, analyzing contents of packets to be communicated over
6 the shared wireless bandwidth in a downlink direction from
7 a wireless base station to at least one customer premises
8 equipment station. The handsets that are accused in this
9 case aren't CPE's, so this step can't be practiced, and the
10 infringe -- the claim is not infringed.

11 Q. Have you identified additional differences between this
12 claim and the Ericsson base station?

13 A. Well, I've already noted the other steps call for CPE,
14 as well, but there is yet another reason that involves the
15 allocation of shared wireless bandwidth.

16 Q. Okay. I think you've got a slide that focuses on that
17 claim language of Slide 47.

18 Okay. Let's take one slide back and just orient
19 ourselves here. What function -- or what components are
20 accused with respect to this patent?

21 A. Okay. For this patent, the third one we've been
22 talking about, now we're talking about both schedulers,
23 both uplink and downlink.

24 Q. Okay.

25 MR. KUBEHL: And let's go to Slide 47.

1 Q. (By Mr. Kubehl) And please tell me about the
2 highlighted claim language and what that's requiring.

3 A. Okay. So this step calls for an allocation allocating
4 the shared wireless bandwidth between the wireless base
5 station transmitting in the downlink direction and the at
6 least one CPE station transmitting in the uplink direction,
7 based on the analyzed contents and the analyzed reservation
8 requests.

9 So there's an allocation to be made. It's an
10 allocation of bandwidth between -- between what? The
11 uplink and the downlink.

12 Q. Does the patent give us any description of that
13 concept?

14 A. Yes, it does.

15 Q. Please tell us about that.

16 A. Go to the next slide.

17 Certainly.

18 Next slide, please.

19 There is --

20 MR. KUBEHL: Slide 48, please.

21 A. -- slide where I looked at -- I believe it's --

22 THE COURT: One at a time, gentlemen. One at a
23 time.

24 MR. KUBEHL: Mr. Patterson, could we have Slide
25 48, please?

1 THE COURT: Let's proceed.

2 Q. (By Mr. Kubehl) Dr. Wicker, please tell us about the
3 language in the patent and how it relates to your analysis.

4 A. Okay. So this is from the '517 patent, Defense Exhibit
5 2, and this is a particular part of the patent.

6 This means Column 53 -- I don't know if we've
7 looked at that. All the columns in the patent are
8 numbered, at least most of them are. And so this is
9 Column 53 of the '517 patent. It's Line 17 through 29.

10 And what I noted here was that it talked about the
11 distribution of slots between the downlink and the uplink
12 is dynamically assigned. And so what that told me was we
13 can think of our resources as being a collection of slots.
14 And sometimes I'm going to give more slots to the uplink,
15 and sometimes I'll give more to the downlink. It depends
16 on what's needed.

17 But the key here is that we have dynamic
18 assignment of those slots between the downlink and the
19 uplink.

20 Q. And do those -- does -- does the downlink and the
21 uplink have to be part of a shared wireless bandwidth?

22 A. Yes, that's what the claim calls for.

23 Q. And is that the way T-Mobile's network works?

24 A. No.

25 Q. Please explain it.

1 A. Okay. So T-Mobile's network has fixed assignments for
2 uplink and downlink. We noted that T-Mobile's network has
3 an allocation from the FCC, we obtained at auction, and
4 what happens is a particular band will have a designated
5 uplink set of frequencies and a designated downlink set of
6 frequencies. And they don't overlap. They are separated
7 by a gap, as I drew earlier today.

8 And so as we see here, we have uplink frequencies
9 and downlink frequencies. You can't take away some from
10 the uplink and give them to the downlink or vice versa.
11 It's fixed.

12 Q. And which exhibit are you referring to?

13 A. This is Defense Exhibit 250.

14 MR. KUBEHL: Next slide.

15 Q. (By Mr. Kubehl) What are you showing us here?

16 A. Okay. I mentioned the FCC allocations. That's Federal
17 Communications Commission, by the way. These are the LTE
18 bands that are used by T-Mobile. These bands have an
19 associated number, and what they do is they designate a
20 particular range of uplink frequencies, a particular range
21 of downlink frequencies.

22 So Band 2, for example, goes from 1850 to 1910
23 megahertz. And the downlink goes from 1930 to 1990
24 megahertz. So as I drew in that previous -- sorry,
25 actually I reproduced it from another document -- but those

1 separated blocks for the uplink and downlink, here we can
2 see this particular band has those blocks separated by 20
3 megahertz.

4 Other bands have different separations, but in all
5 cases, the uplink and downlink blocks are separated. That
6 means that chunk of the spectrum is not shared.

7 Q. If we go to the next slide, what are you showing us?

8 A. Okay. So once again, we've got an Ericsson base
9 station. I've got an uplink scheduler and a downlink
10 scheduler. These schedulers work independently.

11 The uplink frequencies are separate and distinct
12 from the downlink, and there's no ability of the uplink to
13 take some of those downlink frequencies -- or for the
14 downlink scheduler to take some of the uplink frequencies.
15 They've got a fixed allocation, and that's what they're
16 working with.

17 Q. Can there be some communications between the uplink and
18 downlink scheduler?

19 A. There may be, yes.

20 Q. But do the uplink scheduler -- does the uplink
21 scheduler have any ability to allocate from a shared
22 wireless bandwidth between the uplink and downlink
23 frequencies?

24 A. No.

25 Q. What about the downlink scheduler? Can that allocate

1 from a shared wireless bandwidth that's shared between the
2 uplink and downlink frequencies?

3 A. No.

4 MR. KUBEHL: Next slide.

5 Q. (By Mr. Kubehl) Without stating it twice, let's go to
6 the next slide, and can you please summarize your opinions
7 with respect to the '517 patent and whether the Ericsson
8 base station, as it's used in the T-Mobile network, would
9 infringe Claim 1?

10 A. Okay. What I've discussed today are two reasons why
11 this claim of the '517 patent is not infringed.

12 First off, all of the steps require CPE stations.
13 Those cell phones are not customer premises equipment.

14 Secondly, the one, two -- the third step calls for
15 allocating shared wireless bandwidth between the uplink and
16 the downlink. And that's simply not possible. In fact,
17 it's not even allowed by the FCC.

18 Q. Okay.

19 MR. KUBEHL: Next slide.

20 Q. (By Mr. Kubehl) On the '517 patent, there's a
21 dependent claim, and have you analyzed whether the
22 dependent claim is infringed?

23 A. Yes.

24 Q. Is it infringed or not?

25 A. It's not because, as a dependent claim, it requires --

1 go back to the previous slide, please.

2 It requires -- actually, that was the slide
3 I wanted.

4 Claim 1 of the '517 is required for the dependent
5 claims that are asserted in this case. And since Claim 1
6 is not infringed, the dependent claims can't be infringed.

7 Q. So to summarize the infringement part of your opinions,
8 with respect to the -- going back to the '629 patent, what
9 are the -- what are the takeaways you want the jury to have
10 from your testimony?

11 A. Okay. So the '629 patent is the one we looked at
12 first. That's the one that requires reserving a first slot
13 in a future transmission frame and reserving a second slot
14 in yet a later transmission frame subsequent in time to
15 said future frame.

16 The Ericsson scheduler does not reserve slots
17 ahead of time. It does not reserve slots in future frames.
18 Q. Okay.

19 A. Those steps are not from practiced, and, therefore, the
20 claim is not infringed.

21 Q. And then just briefly in the '206 patent?

22 A. Okay. In the '206 patent, first and foremost, the
23 accused Ericsson base stations do not use end-user QoS
24 requirements. It's always network QoS requirements. And
25 I showed that in several ways.

1 Furthermore, there's no classifying of a plurality
2 of packets in the accused devices. Instead, QoS is
3 associated with the tunnel, with the bearer, instead of
4 being associated with individual packets.

5 Q. Okay. And I won't ask you to repeat the '517 patent
6 that we've -- we've just gone over.

7 MR. KUBEHL: I've got just a little bit more
8 testimony to take from Dr. Wicker.

9 Q. (By Mr. Kubehl) I wanted to ask you about your
10 opinions regarding Dr. Chrissan's valuation analysis.

11 THE COURT: Let's don't have a discussion. Let's
12 ask him a question.

13 MR. KUBEHL: Yes, Your Honor.

14 Q. (By Mr. Kubehl) Dr. Wicker, do you understand that
15 Dr. Chrissan provided an analysis in this case regarding
16 how he viewed the technical value of patents that were the
17 subject of Ericsson LTE patent license agreements?

18 A. Yes.

19 Q. What did you understand the context of that analysis to
20 be?

21 A. Okay. I understood Dr. Chrissan to be comparing
22 Ericsson's patent portfolio on the basis of 18 patents to
23 the asserted patents in this case, and he was trying to
24 somehow gauge where the value was in both cases.

25 Q. And did you understand whether he was taking the

1 position that those 18 patents represented the entire value
2 of the portfolio?

3 A. That was my understanding, yes.

4 Q. Is that your view?

5 A. No.

6 Q. What's the basis for that opinion?

7 A. Okay. So what I did was I studied Dr. Chrissan's
8 expert report, and I was in court yesterday when he
9 testified.

10 And it was my understanding that he was comparing
11 18 of Ericsson's patents. That was the only one he
12 analyzed for this purpose. And on that basis, he was
13 trying to come up with a valuation -- technical valuation,
14 as he put it, for hundreds of Ericsson patents, patents
15 that are potentially LTE essential.

16 Q. And are you familiar with Ericsson's position in
17 patents in the LTE space?

18 A. Yes.

19 Q. How would -- how do you characterize Ericsson's patent
20 holdings in LTE generally?

21 A. Okay. So Ericsson has lots of patents. And that's
22 been discussed actually throughout the trial. They have
23 hundreds of patents -- actually hundreds of families of
24 patents, groups of patents that are potentially essential
25 LTE patents.

1 So potentially essential means these could be
2 patents that you have to practice in order to be LTE
3 compatible.

4 Q. You've been in court this week when there's been some
5 discussion of the EPO award that they were nominated for?

6 A. That's right.

7 Q. Did you think that that award was relevant to your
8 analysis?

9 A. Yes, because what it did was it showed me that Ericsson
10 continues to be very prolific in inventing things and
11 making contributions to standards.

12 I cited from at least one contribution today.
13 I've been familiar with their work for a long time. They
14 are a highly inventive company.

15 Q. So how about Dr. Chrissan's analysis of the 18 patents?
16 What's your response generally to his analysis?

17 A. My initial response was that it is overly negative, and
18 I was surprised by some of his valuations and conclusions,
19 but I further noted that he went through this process with
20 Ericsson's patents but did not go through this process with
21 the asserted patents.

22 Q. What do you mean by "this process"?

23 A. The process of saying, well, some of these are likely
24 invalid. Some of these are of low value because they're
25 probably not used and things like that. He did not take

1 that approach to the asserted patents. He simply assumed
2 they were valid.

3 Q. Did you find the asserted patents to be related to old
4 technology or new technology?

5 A. Old technology. The asserted patents actually relate
6 to something called TDMA, Time Division Multiple Access.

7 The slot language, for example, tells me that.
8 And that takes us back to 2nd generation cellular, and, of
9 course, LTE is 4th generation cellular.

10 Q. Did you find that the concepts that were claimed, like,
11 for example, reserving slots was a 2nd generation concept?

12 A. Yes.

13 Q. What are the different ways that Dr. Chrissan degraded
14 the value of the Ericsson patents?

15 A. Okay. Well, he had a number of bases. One of them was
16 whether or not it was likely to be invalid, whether or not
17 it was something that had been -- that appeared to him to
18 be -- when push came to shove, you know, it would be found
19 invalid.

20 Q. And did you take a look at the 18 Ericsson patents?

21 A. Yes, I did.

22 Q. Did you take a look at more Ericsson patents than that?

23 A. Yes, I did. There are a lot of Ericsson patents.

24 Q. What was your finding -- in looking beyond the 18
25 patents, what was your finding with respect to whether the

1 18 patents were representative of the value of the entire
2 Ericsson portfolio?

3 A. They are a sampling. So the 18 are a sampling from the
4 portfolio, but they can't possibly represent what amounts
5 to hundreds of potentially essential LTE families of
6 patents.

7 So there's lots of technologies that are involved
8 with Ericsson's work that weren't represented by those 18
9 patents.

10 Q. One of the patents you looked at is Exhibit 49,
11 I believe?

12 MR. KUBEHL: And you can actually just stick on
13 Slide 58.

14 Q. (By Mr. Kubehl) Tell me about this patent.

15 A. Okay. This is a patent -- it's an Ericsson patent, as
16 you can see here, and it is a patent to Turina. It was
17 granted in 2000. It was applied for in 1996. So it takes
18 us back before the patents-in-suit in this case.

19 This is a patent that talks about improving
20 performance of a packet communication system. And, in
21 particular, what it does is create something called a VIP
22 channel. It's a way of reserving resources so that a given
23 channel is guaranteed for important voice communications.

24 Q. Okay. And what's the -- what's the invention in this
25 patent?

1 A. Okay. That would be the actual creation of three
2 channels and the use of those channels to reserve slots
3 ahead of time so that we guarantee the performance of a
4 particular VIP channel.

5 Q. And does -- does LTE, in your opinion, use this concept
6 of creating three different channels for these control
7 purposes?

8 A. For control purposes, yes. LTE does use these three
9 channels.

10 Q. And is that technology that's accused in this case?

11 A. No, it's not.

12 Q. What are you showing on Slide 59?

13 A. Okay. So this is Figure 6 from the Turina patent, and
14 this shows the three channels. We've got the VIP channel
15 request using the reserved RA channel, and then we've got a
16 dedicated channel assignment, using a downlink channel, and
17 then we've got the actual packet transfer, so that's where
18 we see data or voice actually being transferred.

19 Q. How does the Ericsson Turina patent accomplish the
20 creation of this reserved channel?

21 A. It does it by actually reserving slots ahead of time.
22 There is a particular figure.

23 If we can go to the next slide, please.

24 What this shows is a sequence of TDMA frames, each
25 consisting of eight slots in this case. And what we see

1 are reservations -- let me try that again.

2 So there's our TDMA frame. And we see
3 reservations and future frames. Those two slots are
4 reserved in future frames, so they'd be available for this
5 VIP channel.

6 Q. Now, how do you know they're reserved? Where do we see
7 that?

8 A. Okay. So down here, you see the language: Time slots
9 reserved for VIP -- VIP mobile station.

10 Q. So if you wanted to identify on this figure where the
11 current frame would be, which one would that be?

12 A. That would be Frame 0. So this is the current frame,
13 and these are future frames.

14 Q. And those slots, are they at constant or not constant
15 time intervals?

16 A. They are at constant intervals because we see that --
17 for example, here we have Slots 4 and 5 in Frame 0, the
18 current frame; 4 and 5 in and Frame 1, future frame --
19 Frame -- Slots 4 and 5, excuse me, and subsequent future
20 frames.

21 MR. KUBEHL: If we go back to Slide No. 58.

22 Q. (By Mr. Kubehl) This is an Ericsson patent?

23 A. Yes, it is.

24 Q. And it was filed 1996; is that right?

25 A. That's right. You can see that.

1 Q. Is it a United States patent?

2 A. Yes, it is.

3 Q. And this is Exhibit 49?

4 A. That's correct.

5 Q. And then what was Dr. Chrissan's opinion about whether
6 this patent was valid or invalid?

7 A. It was his opinion that it was likely to be invalid.

8 Q. And when was that filed relative to the '629 patent
9 that reserves future slots at equal intervals?

10 A. The Turina patent was actually filed before the '629
11 patent.

12 Q. Ericsson was first?

13 A. Ericsson was first.

14 THE COURT: Counsel, approach the bench, please.

15 (Bench conference.)

16 THE COURT: Can you give me some idea of how much
17 longer you have?

18 MR. KUBEHL: Five minutes, roughly.

19 THE COURT: I figured you were getting close, but
20 it's almost two hours since we came back from lunch. Okay.
21 Let's continue.

22 MR. KUBEHL: Okay.

23 (Bench conference concluded.)

24 THE COURT: Let's continue, please.

25 Q. (By Mr. Kubehl) Dr. Wicker, having looked at the

1 asserted patents, do you have an opinion as to whether or
2 not the inventor on the asserted patents invented LTE?

3 A. The -- the inventor on the asserted patents certainly
4 did not invent LTE. These patents were second generation
5 technology, and LTE is fourth generation.

6 Q. How about VoLTE, did this inventor invent VoLTE?

7 A. No.

8 Q. Do you have an opinion as to whether or not these three
9 patents would provide up to 25 percent efficiency in
10 systems that would use VoLTE?

11 A. I see no basis for that at all.

12 MR. KUBEHL: Done a little quicker than I thought.
13 I'll pass the witness.

14 THE COURT: All right. Counsel, before the
15 Plaintiff cross-examines Dr. Wicker, we're going to take a
16 short recess.

17 Just leave your notebooks, if you will, closed and
18 in your chairs.

19 Recall and remember all my instructions, including
20 not to discuss the case among yourselves, and we'll be back
21 shortly to continue, as I say, with the Plaintiff's
22 cross-examination of the witness.

23 The jury is excused for recess at this time.

24 COURT SECURITY OFFICER: All rise.

25 (Jury out.)

1 THE COURT: Counsel, it won't bother me if you
2 make a short bathroom break on the way, but shortly
3 thereafter, I want to see you in chambers.

4 The Court stands in recess.

5 COURT SECURITY OFFICER: All rise.

6 (Recess.)

7 COURT SECURITY OFFICER: All rise.

8 THE COURT: Be seated, please.

9 All right. Mr. Black, are you prepared to
10 cross-examine the witness?

11 MR. BLACK: I am, Your Honor.

12 THE COURT: You may go to the podium and prepare.
13 While you're doing that, Ms. Denton, please bring
14 in the jury.

15 COURT SECURITY OFFICER: All rise.

16 (Jury in.)

17 THE COURT: Please be seated.

18 Ladies and gentlemen, we'll continue with
19 Dr. Stephen Wicker, who will now be cross-examined by the
20 Plaintiff.

21 Mr. Black, you may proceed with cross-examination.

22 CROSS-EXAMINATION

23 BY MR. BLACK:

24 Q. Good afternoon, Dr. Wicker.

25 A. Good afternoon.

1 Q. Good to see you again.

2 A. Thank you.

3 Q. You are here as an expert witness, right?

4 A. That's correct.

5 Q. And you're familiar with the difference between expert
6 and fact witnesses, right?

7 A. Generally speaking. I'm not a lawyer, but I think I
8 understand the difference.

9 Q. Well, you've testified in depositions or at trial in
10 the last five years alone, I think, 28 times, right?

11 A. That's probably right.

12 Q. That's what your report says, right?

13 A. Okay. Yes.

14 Q. So let's talk about the expert process.

15 Fact witnesses give facts, right?

16 A. Yes, sir.

17 Q. And expert witnesses are permitted to give opinions,
18 right?

19 A. That's correct.

20 Q. And the Federal Rules of Civil Procedure, which are
21 enacted by the United States Supreme Court, provide rules
22 to ensure fairness in trials to avoid surprises in expert
23 opinions, correct?

24 A. That's my understanding.

25 Q. And as a result of that, when you provide expert

1 testimony in court, you are first required to provide an
2 expert report, correct?

3 A. That's right.

4 Q. Now, the jury hasn't seen expert reports because they
5 don't get admitted into evidence and go back in the jury
6 room, correct?

7 A. That's been my experience, but I don't know if that's a
8 rule or not.

9 Q. But they can be very long and detailed documents.

10 A. That's correct.

11 Q. And in this case, you had a very extensive report,
12 which was over 400 pages single spaced, correct?

13 A. That's correct.

14 Q. And that just covered infringement, right?

15 A. That's right.

16 Q. We'll hear from Dr. Acampora about validity. I think
17 his was over a thousand pages, correct? Have you seen
18 Dr. Acampora's report?

19 A. No. At least I haven't studied it in detail. I don't
20 believe I've seen it.

21 Q. Oh. Have you seen it or not? You don't know?

22 A. I don't recall.

23 Q. Did you see his commentary about Turina, that patent
24 that you discussed today during your testimony?

25 A. I know that he talked about it. I don't recall ever

1 seeing or reading his report.

2 Q. Okay. Now, the reports that get filed -- served really
3 to the other parties, have a number of traditional sections
4 in them. Some are required by the United States Supreme
5 Court, and others are by convention, right?

6 A. That's my understanding, yes.

7 Q. And your report, which I'm holding up, has a cover.
8 It's got a caption on it of this case: Jury trial
9 demanded. Intellectual Ventures I LLC versus T-Mobile USA,
10 et cetera, right?

11 A. That's correct.

12 Q. And this is partly a legal document, right?

13 A. I'd assume so. It's certainly -- it's a document that
14 I've produced for purposes of putting you on notice as to
15 what I'm going to talk about.

16 Q. And you work with the lawyers to help put it in the
17 right format and make sure it's going to be consistent with
18 the case that the lawyers are putting on, right?

19 A. Well, I wouldn't say I work to make sure it's
20 consistent. They certainly helped me with the format.

21 Q. Well, you testified before that you -- people come to
22 you, and sometimes you say you turn them down because
23 you're -- you don't believe in the positions in the case.

24 But other times, you take the cases, and then you
25 work with the lawyers, and occasionally come to trials like

1 this, right.

2 A. That's true.

3 Q. So your report here has a table of contents that is
4 eight pages long, and it starts with an introduction of
5 your qualifications. That's the first section, right?

6 A. That's correct.

7 Q. And then you have a section on materials and other
8 information considered, right?

9 A. That's right.

10 Q. And the purpose of that is to make sure that we can
11 have a full and complete understanding of the materials
12 that you reviewed during your process of forming your
13 opinions, right?

14 A. That's correct.

15 Q. And that's only fair, right?

16 A. I think so.

17 Q. It also provides a list of any prior testimony you've
18 had in the last five years by deposition or at trial,
19 correct?

20 A. That's right.

21 Q. And as I noted, you identified 28 cases in your expert
22 report just in the last five years, right?

23 A. That's correct.

24 Q. And the vast majority of them were for Defendants,
25 right?

1 A. Certainly the majority. I haven't counted, but the
2 majority would be for Defendants, and then there were
3 several for Plaintiffs.

4 Q. So you had several for Plaintiffs, but the rest for
5 Defendants, right?

6 A. That's right.

7 THE COURT: Dr. Wicker, please make sure you speak
8 up and are heard.

9 THE WITNESS: Yes, sir.

10 THE COURT: You're getting a little soft now that
11 we've gotten to cross-examination, so either move the mic
12 or whatever.

13 THE WITNESS: Yes, Your Honor.

14 THE COURT: All right. Thank you.

15 Go ahead, counsel.

16 MR. BLACK: Thank you, Your Honor.

17 Q. (By Mr. Black) Now, the next section of your report is
18 your compensation, right?

19 A. That's correct.

20 Q. And you told the jury that your rate was \$750.00 an
21 hour, right?

22 A. That's correct.

23 MR. BLACK: And if I -- can I just go to the ELMO
24 for a second?

25 Q. (By Mr. Black) I want to use Mr. Ward's handy sheet

1 here and get that -- okay. Got that right?

2 A. Yes, sir.

3 Q. All right. You're a Cornell University professor,
4 right?

5 A. That's correct.

6 Q. You've had 28 depositions and trial appearances in the
7 last five years, right?

8 A. That's roughly correct, yes.

9 Q. That's almost six per year, right?

10 A. That sounds about right.

11 Q. That's every two months you're in court or at a
12 deposition, right?

13 A. They're not so evenly spaced, unfortunately. But
14 roughly speaking, that's right.

15 Q. When -- when we met in Ithaca for your deposition, do
16 you remember that when I walked in the deposition room,
17 the -- the court reporter greeted you warmly because she
18 was so familiar with you? We had a laugh about that.

19 A. I do remember that.

20 Q. As a university professor, you're paid a salary by the
21 university, of course?

22 A. That's right.

23 Q. And I don't want you to tell us how much you make.

24 I don't think it's right to ask people what they make for
25 living. But if you could just in your head tell us sort of

1 if you had a 1500-hour year, a 2000-hour year, something
2 like that, what would your -- if you took your university
3 salary and tried to convert it into an hourly rate, what
4 would that rate be? About a hundred, maybe, dollars an
5 hour, \$75.00 an hour?

6 A. No, it would be more than a hundred.

7 Q. 125?

8 A. So if we assumed -- let's say, a 1500-hour year?

9 Q. You assume whatever is fair to you. I didn't want to
10 give you the same number as a law firm first year
11 associate, 2,000 hours. That really didn't seem right. A
12 university professor gets some time off in the summer and
13 whatever, but...

14 A. Well, we get the whole summer off, but, yes, that's
15 correct.

16 Q. Okay. So about \$125.00 an hour; is that fair?

17 A. Probably closer to 175, 200.

18 Q. 175, 200. I won't quibble with the math. But any way
19 you cut it, the rate that you're getting paid by the
20 university to work is three -- one-third, one-quarter of
21 what you're getting for your expert witness services,
22 right?

23 A. That's correct.

24 Q. So the rest of your report consists of a section on
25 opinions as to the level of one of ordinary skill in the

1 art. You have an opinion on that, right?

2 A. That's correct.

3 Q. And then we've got a technology background that's a
4 hundred -- it's 90 pages, right?

5 A. That's correct.

6 Q. And then we've got your opinions which run for, let's
7 see, it looks like all the way through Page 461?

8 A. Okay.

9 Q. And then a table of figures which runs from Figure A
10 through Figure RRRRR. You ran out of letters, so you had
11 to start your letters over again?

12 A. That's right. There are a lot of figures.

13 Q. Anyway, the kind of testimony that you're providing
14 today is very different from the kind of testimony that
15 Mr. Skarby tried to put on this morning, correct?

16 A. That's correct.

17 Q. That's because he's a fact witness for whom we had no
18 report, correct?

19 A. I think that's true. Actually I don't know the
20 details.

21 Q. As far as you know, we had no expert report from
22 Mr. Skarby, correct?

23 A. As far as I know, that's correct.

24 Q. And, therefore, none of the protections that the United
25 States Supreme Court gives to folks involved in lawsuits

1 when expert witnesses testify?

2 A. I assume that's correct.

3 Q. And partly for that reason, I don't think I had more
4 than one objection during the two hours that you were on
5 the stand. And that was very different from what we had in
6 the case of Mr. Skarby's testimony, correct?

7 A. I did notice that, yes.

8 Q. All right. Let's get to your opinions.

9 You provided some initial background about
10 yourself, of course, the books that you've written, the
11 five patents that you've been awarded, some of your work
12 with an industry -- you mentioned AT&T. You've done
13 litigation consulting for AT&T?

14 A. Yes, I have.

15 Q. Before I forget, you -- you've done prior litigation
16 consulting for both T-Mobile and Ericsson, haven't you?

17 A. Yes, that's correct.

18 Q. You didn't mention -- oh, I think you mentioned the
19 White House, too. You said something about being in
20 Washington yesterday on a panel, and then you said the word
21 "White House." You weren't in the White House yesterday,
22 were you, for the --

23 A. No. What I said was several years ago I was invited to
24 the White House to talk on cellular privacy and security.

25 Q. Oh, I see. Okay. Just wanted to make sure. It was a

1 little ambiguous.

2 A. No, I definitely was -- was in here yesterday.

3 Q. Okay. Now, you put up a slide, Slide 3.

4 MR. BLACK: Put that up from --

5 Q. (By Mr. Black) And Slide 3 had on it on one column

6 your honors and awards and on the other column your

7 consulting engagements. You see that on the right?

8 A. That's correct.

9 Q. But you didn't mention your legal consulting business
10 which is consuming a very significant part of your time and
11 providing most of your income, correct?

12 A. That's correct. This -- these consulting engagements
13 were the ones for the United States Government. I'm happy
14 to talk about my legal consulting, as well.

15 Q. All right. Your 462 single-spaced report took how long
16 to write?

17 A. Several hundred hours.

18 Q. Over what period of time?

19 A. Some of it was tutorial material that I'd written in
20 the past. So when I talk about wireless technology, I
21 typically say the same things about the various generations
22 of cellular. So that was written over a year ago.

23 The rest of it, including my opinions specific to
24 the case, would have been written in the six months prior
25 to submission.

1 Q. Okay. Six months prior to submission. Let's -- before
2 we forget, let's do the math. A couple hundred hours. Was
3 it 300, 500?

4 A. On the order of 300.

5 Q. Order of 300. 300 times 750 would be 225,000; is that
6 right?

7 A. That's right.

8 Q. You worked on your report for about six months. Six
9 days before you had to serve the report, you had a phone
10 call with Mr. Ahmed from Ericsson who was performing the
11 testing in Sweden, correct?

12 A. That's correct.

13 Q. And that was first time you had spoken to him, right?

14 A. Yes.

15 Q. So you've written this long report, worked on it for
16 six months, it's 462 page single-spaced. I guess you're
17 probably in final editing at that point, and all of a
18 sudden you have a call with the folks in Sweden about
19 running a new test; is that right?

20 A. That's right.

21 Q. Who arranged for that testing to be done? Who arranged
22 for you to talk to Mr. Ahmed?

23 A. It was counsel that arranged for me to talk to him.

24 Q. Which counsel?

25 A. Counsel for Ericsson, Baker Botts.

1 Q. Baker Botts.

2 So they -- they called you up and said, look, we
3 want you to get in touch with Mr. Ahmed?

4 A. No. That's not how it worked. What happened was I had
5 looked at Plaintiff's infringement report, the report that
6 was submitted by Dr. Williams, and I'd only had that for a
7 couple weeks.

8 In that report, it was asserted that certain
9 things were happening, and I thought, well, that can't be
10 right.

11 The way to determine whether or not it's right is
12 for there to be testing. So I asked that testing be done,
13 and so the call was set up.

14 MR. BLACK: Your Honor, I'd ask that Dr. Wicker
15 answer the questions and not elaborate.

16 THE COURT: Well, I'm not going to strike the
17 answer. I think it was responsive to your question. I
18 will instruct the witness to limit his answers to the
19 questions that are asked.

20 THE WITNESS: Yes, Your Honor.

21 THE COURT: And if, counsel, you believe the
22 witness is nonresponsive, raise it with the Court, and I'll
23 address it.

24 Let's proceed.

25 MR. BLACK: Okay.

1 Q. (By Mr. Black) During those tests that were connected
2 in -- at Ericsson's labs in Sweden, no one from IV was at
3 the test, right?

4 A. Not that I know of.

5 Q. In fact, IV wasn't even told those tests were going on
6 until they received your report, correct?

7 A. That's my understanding.

8 Q. IV had no input into the parameters used in the testing
9 labs at Ericsson when the tests were run, correct?

10 A. Not that I know of.

11 Q. All right. You had input into those parameters,
12 though, right?

13 A. I did. I picked them.

14 Q. And some of the parameters you picked involved making
15 the phones in some instances, maybe a third of the
16 instances, have really bad service, right?

17 A. Not exactly.

18 Q. I'll rephrase it.

19 You set the system up so that, in some cases -- I
20 think it was about a third of the time -- it was simulating
21 really bad cell service, right?

22 A. I specified parameters that were -- made the system
23 really busy. And so since the system was busy, that
24 resulted in bad service. I did not specify bad service.

25 Q. Stand corrected.

1 You specified parameters that you knew would
2 result in a simulation of bad service.

3 A. I thought it would, yes.

4 Q. And one of the problems with having bad service is the
5 phone, when it's talking to the cell or in the simulation,
6 it's constantly -- I'll use a nontechnical term, sort of
7 hiccupping.

8 You have all these little 1 millisecond hiccups
9 that result from the fact that the phone can't speak
10 correctly to the base station, right?

11 A. Something like that.

12 Q. And, therefore, you have intervals shown in your data
13 of 1 millisecond, right?

14 A. There are intervals between transmissions that, in some
15 cases, were 1 millisecond, that's correct.

16 Q. Right.

17 A. Or a small number of milliseconds.

18 Q. And in contrast, if you had done the tests in an ideal
19 system, in a system where there was a low level of
20 business, you'd get much better results, right?

21 A. Certainly, if it's less busy, it would result in better
22 service. I would not agree that that's necessarily ideal.

23 Q. But it's true that overall, if you pick a -- as between
24 an environment where there are -- there's one phone talking
25 to a base station in the middle of the night, an

1 environment where the base station is completely crowded
2 and oversubscribed, you're going to get a lot more of those
3 40 millisecond intervals we've been talking about in the
4 base station that's not busy, right?

5 A. That's certainly true.

6 Q. All right. But you picked tests in this case which
7 would show that a busy environment would reduce the number
8 of 40 millisecond intervals; isn't that right?

9 A. No. I picked a range of values that included both busy
10 and not so busy.

11 Q. Now, IV doesn't have to prove that every single time
12 packets are sent in the Ericsson system that there are, in
13 fact, 40 millisecond intervals every time; isn't that
14 right?

15 A. They have to prove a lot more than that.

16 Q. On the isochronous point, we don't have to prove that
17 Ericsson uses that isochronous behavior every single time,
18 right?

19 A. If I may, the step does not have to be satisfied at all
20 times to be satisfied.

21 Q. In other words, IV wins if IV shows that there is some
22 isochronous behavior. We don't have to show that the
23 packets are always isochronous, correct?

24 A. It is correct the step has to be practiced. It doesn't
25 have to be practiced all the time.

1 Q. We actually only have to show it's practiced once to
2 get an infringement verdict; isn't that right?

3 A. All the other steps have to be practiced as well, but
4 if all of the steps are practiced once, there is
5 infringement on that one practicing of all the steps.

6 Q. Now, you would agree, would you not, that in a
7 situation where a packet is transmitted at time T equals to
8 20, a second packet at time T equals to 60, and a third
9 packet at times T equals to 100, that that's transmission
10 in an isochronous manner, correct?

11 A. Yes.

12 Q. Right.

13 A. That would satisfy consistent time intervals, yes.

14 Q. So, therefore, the target that IV has to hit on the
15 isochronous point is it's got to show a situation where
16 there are two 40 millisecond intervals in a row, correct?

17 A. Well, they have to show consistent time intervals, and
18 if there are several that are 20 in a row or 40 in a row,
19 that would satisfy.

20 Q. If there's 20 in a row or 40 in a row, that would
21 satisfy it?

22 A. I think -- well --

23 Q. I think you're --

24 A. -- I misspoke.

25 The -- if the intervals are consistently 20

1 milliseconds or 40 milliseconds -- I thought you said 20 a
2 moment ago -- in either case, consistent time intervals
3 would satisfy the isochronous step?

4 Q. And we only need two consistent time intervals, right?

5 A. Two would be consistent. You'd have one to compare to
6 the other.

7 Q. Right. Now, Dr. Williams showed a slide yesterday --

8 MR. BLACK: And let's get that up. Williams 136,
9 it should be.

10 Q. (By Mr. Black) He showed a slide yesterday of the
11 grant intervals from the Ericsson test results. Do you
12 recall that?

13 A. Just so we're clear, this is the data that's taken from
14 one of the tests. There were many tests. So it's not of
15 the Ericsson data. This is an example of the Ericsson data
16 that he picked.

17 Q. It's an example of a -- it's a -- I'll be precise.
18 This is a graph which depicts the grant intervals observed
19 by Ericsson during the testing in Sweden that they set up
20 with your parameters without telling IV, correct?

21 A. Of a single phone amongst many, many tests, that's
22 correct.

23 Q. Of a single phone --

24 A. That's right.

25 Q. -- correct.

1 And what we see in this phone is that almost
2 80 percent of the grants are at 40 milliseconds, correct?
3 A. That's correct.
4 Q. And what we see is that virtually all of the remaining
5 grants are at 160 milliseconds, correct?
6 A. Certainly a lot are over here at 160, but there's also
7 quite a few that are distributed across that set of
8 intervals.
9 Q. You consider that to be quite a few in your
10 professional opinion as an electrical engineer?
11 A. Certainly. What's hard to see here is that they're
12 very finely spaced, and so they actually do add up. But
13 it's -- it's certainly not as many as -- as we see here.
14 Q. Well, let's try it out. It's got to be -- the graph
15 has got to add to a hundred, right?
16 A. That's right.
17 Q. So the line at 40 is 78, right?
18 A. That's right.
19 Q. And the line at 160 is -- it looks like 14 and a half
20 to me, but we'll call it 14.
21 A. Okay.
22 Q. So that's 92, right?
23 A. That's right.
24 Q. And the rest would be 8 percent, right?
25 A. That's right.

1 Q. Okay. You didn't respond to this testimony from
2 Dr. Williams during your direct examination today, did you?

3 A. Actually, I did. I showed an example from the test and
4 showed that what he was claiming was, in fact, not the
5 case.

6 Q. You didn't address this graph in your -- in your
7 testimony, did you?

8 A. No, I didn't put this graph up.

9 Q. Now, you would agree, would you not, that it is
10 impossible for a -- for this phone, in this condition, with
11 almost 80 percent grants, to not have the isochronous
12 behavior you described before, and that is, two packets
13 spaced 40 milliseconds apart; isn't that right?

14 A. Yes. If I understand your question correctly, the fact
15 that there's 78 percent here would indicate there's
16 probably a number of intervals -- consecutive intervals
17 that are at 40 milliseconds apart.

18 Q. Did you review the data from the Ericsson tests?

19 A. Yes.

20 Q. Would it surprise you to know that there's at least one
21 instance where there were 89 consecutive 40-millisecond
22 intervals?

23 A. I would not be surprised.

24 Q. You would not be surprised by that, and you've admitted
25 that the claim language requires for the isochronous

1 element only two intervals, but yet you gave an opinion
2 that there was no isochronous treatment; is that right?

3 A. I think you misunderstood what I said. First off, I
4 said the isochronous spacing did not indicate the presence
5 of reservations. And I showed clearly that the two
6 reservation steps were not satisfied.

7 Q. We'll come to reservations. We'll get to the tables.

8 But, first, I want to clear out isochronous. You
9 would agree that in a phone like this which has 78 percent
10 of the grants at 40 milliseconds, there is going to be
11 numerous times when there are multiple 40-millisecond
12 intervals which meet your definition of isochronous, right?

13 A. On this chart, that's correct.

14 Q. And this chart is of a phone that Ericsson set up and
15 your testing that you did without IV, right?

16 A. That's correct.

17 THE COURT: What was your answer, Dr. Wicker?

18 THE WITNESS: That's correct.

19 THE COURT: Please try to speak up.

20 THE WITNESS: Yes, Your Honor.

21 Q. (By Mr. Black) You told the jury that DBS-SABE doesn't
22 make reservations?

23 A. That's correct.

24 Q. And you described it as a scheduling competition,
25 right?

1 A. I did not describe DBS-SABE as a scheduling
2 competition. I said that the DBS portion was a scheduling
3 competition.

4 Q. DBS portion is a scheduling competition. I didn't
5 understand that. But -- but the actual algorithm running
6 on the system is DBS -- DBS/SABE/DRX, right?

7 A. That's correct.

8 Q. And when you put all those things together, you end up
9 with the consistent behavior that we saw on the screen on
10 your phone from the test, right?

11 A. No, that's not the case.

12 Q. Okay. You analogized this to a restaurant reservation,
13 right?

14 A. That's true, yes.

15 Q. We had that nice picture. It was Wicker 15 --

16 MR. BLACK: Excuse me, Dr. Wicker
17 Demonstrative 15, I think. I think I've got a copy of it.
18 All right. Let's just -- just put it on the ELMO, please.
19 Thank you. Wait. Hold on a second. I want to get your
20 tables.

21 Q. (By Mr. Black) You had a number of people sitting
22 around a table, walking into a restaurant. Do you recall
23 that?

24 A. Yes, I do.

25 Q. And your position was that because the people waiting

1 wouldn't know what table they would sit at, that they --
2 there could not be a reservation involved?

3 A. That is not what I said.

4 Q. Well, you said that the people would arrive at the
5 res -- arrive at the restaurant, and they're standing in
6 line. And there was a series of tables. And as the folks
7 in line would get sent to their seat, they'd go to a
8 different seat.

9 MR. BLACK: There it is. Thank you.

10 Q. (By Mr. Black) And that that showed -- because they
11 were getting seated at different tables, that there was no
12 reservation, right?

13 A. The point was not that there were different tables.

14 The point is that if a lot of people arrived and
15 they don't have reservations, then they'll be expected to
16 wait.

17 And the person who's waited the longest will get
18 the next available table. The scheduling competition
19 that's delay based is thus the opposite of making
20 reservations.

21 Q. Right.

22 A. If there was reservations, there would be a table held
23 for them. They wouldn't have to stand in line.

24 Q. Right. The point of the slide is that a scheduling
25 competition is the opposite of a reservation, right?

1 A. That's right.

2 Q. Now, if somebody came to a restaurant every Thursday
3 morning for breakfast, a crowded restaurant, and 10 weeks
4 in a row they were assigned exactly the same table, would
5 you think that maybe the restaurant owner was keeping track
6 of where they were sitting and giving them the same table
7 every time?

8 A. Well, let's see, so if the person came, and it was a
9 crowded restaurant, and they always had a table waiting for
10 them, that would be an indication that there may have been
11 a reservation.

12 Q. Right. The reservation can be kept, and as somebody
13 comes in or as a packet comes in, the system can be
14 designed to make sure that the person visiting the
15 restaurant gets to the same table every time, right?

16 A. The system could be designed that way, yes.

17 Q. And, in fact, DBS-SABE-DRX is designed to work that way
18 in the ordinary course; isn't that right?

19 A. No.

20 Q. Isn't it right that what DBS-SABE-DRX does is it
21 creates many, many, many isochronous reservations that when
22 there's a bad call, when you can't connect to the phone
23 easily, it will overrule the reservation and do something
24 else, but there's lots and lots of isochronous behavior in
25 the Ericsson systems; isn't that right?

1 A. No, that's wrong.

2 Q. You had another slide about someone making a
3 reservation on one day for two meals in the future. Do you
4 remember that?

5 A. Yes.

6 Q. Have you ever -- and at that point, the reservation is
7 made, right? When the call is made, the restaurant books
8 the table for next Saturday and for the following Saturday,
9 the reservation is made, right?

10 A. That's correct.

11 Q. Have you ever canceled a reservation?

12 A. Yes, I have.

13 Q. Does that mean you never made one in the first place?

14 A. No, that does not mean that. It means there was a
15 reservation, but I canceled it, and so the reservation
16 ceased at that point.

17 Q. Have you ever been ready for your reservation and
18 gotten on the road but got caught in traffic and then were
19 a little late and had to call the restaurant?

20 A. I live in a small town. We don't have traffic, but I
21 can see how that would happen, yes.

22 Q. Doesn't mean -- even though the reservation changed at
23 the last minute, that doesn't mean you didn't make the
24 reservation in the first place, right?

25 A. That's right. So you could have a reservation for a

1 period of time and then change it.

2 MR. BLACK: Let's go back to the Williams
3 Slide 136.

4 Q. (By Mr. Black) Now, I'm sure that you warn your
5 students that there's danger in using common analogies in
6 describing complex software systems, right?

7 A. Yes.

8 Q. Could be a dangerous thing, right?

9 A. Analogies can be stretched to the point of breaking,
10 that's true.

11 Q. Yes, they can.

12 In this case, the analogy is a scheduling
13 competition. That's a word that we've heard many times
14 during this trial, correct?

15 A. I wouldn't say that's an analogy. I'd say it's a
16 description of what actually happens.

17 Q. Well, we don't have packets putting on uniforms and
18 going out to compete on the football field or anything like
19 that, right? I mean --

20 A. No, it's not a full contact competition. It's -- it's
21 a competition in which they -- everyone is ranked who is
22 eligible, and then those with the highest ranks, have an
23 opportunity to transmit.

24 Q. Well, it's a -- let's go a little deeper. It's a
25 software process running on the Ericsson base stations,

1 right?

2 A. That's correct.

3 Q. And the software process is underneath it all a series
4 of 0s and 1s that are being modified and manipulated and
5 computer registers and there's all sorts of complicated
6 stuff going on that you know a lot more than I do about,
7 right?

8 A. Well, I don't know about that last bit, but, certainly,
9 if you looked at a processor and you looked at what was
10 happening on the pins of that processor, you would see lots
11 of 0s and 1s. Some are instructions. Some are data. But
12 it's all 0s and 1s.

13 Q. Right. In the Ericsson system, I think we heard that
14 the processing power of an Ericsson base station is
15 something like 4 -- 40 personal computers or in one chip, I
16 think, 40 personal computers?

17 A. It's a very powerful set of processors.

18 Q. Right. And they require very powerful, very
19 complicated software to run them, correct?

20 A. The software certainly is complex, there's no doubt
21 about that.

22 Q. And it's important for us to look at the -- the output
23 of the result of the, quote, competition as part of your
24 analysis in this claim?

25 A. Well, that's right. That's why I asked for the test.

1 Q. Right. And this is one of the results you got back,
2 correct?

3 A. That's right.

4 Q. And -- thank you.

5 It wouldn't be much of a competition if the same
6 competitor won every time, would it?

7 A. There may be a football analogy there, but I think
8 that, no, it would not be much of a competition --

9 Q. Right.

10 A. -- if the same person or packet won every time.

11 Q. So person or packet. If we thought each of these
12 packets -- let's say each of these intervals from 1 to
13 170 was a person. I guess Mr. 40 would have won 78
14 times, and Mr. 160 would have won 15 percent of the
15 time, right?

16 A. That's not accurate.

17 Q. Okay. And with respect to the 160, that's -- that's
18 when -- what we heard from Dr. Williams, that's what
19 happens when there's silence on the line, right? And
20 that's why we see so many out here at 160, right?

21 A. Yes, that's right. What he explained was that some
22 packets don't have any voice because there's silence, and
23 we don't transmit silence.

24 Q. Right. So when you don't transmit silence because
25 there's silence on the lineup, you actually get another

1 level of isochronous treatment because you have packets
2 that are arriving 160 milliseconds apart, right?

3 A. That certainly could happen, yes.

4 Q. Let's talk about the -- your opinions on the '517
5 patent. That patent you called the CPE patent, right?

6 A. Yes, that's correct.

7 Q. Yes. You called it -- you wrote a slide for the jury
8 that said: Ericsson does not infringe the '517, left
9 paren, quote, CPE patent, unquote, right?

10 A. That's right.

11 Q. That was your decision, right?

12 A. That actually was, yes.

13 MR. BLACK: Can we pull the '517 patent up and
14 show the actual title of it?

15 Q. (By Mr. Black) The actual title is: Method for
16 providing dynamic bandwidth allocation based on IP-flow
17 characteristics in a wireless point to multi-point PTMP
18 transmission system, right?

19 A. That's right.

20 Q. There's a lot more going on here than the CPE in this
21 claim, right?

22 A. Well, first, CPE is easier to say than this title,
23 which I won't repeat, but I will note that this point to
24 multi-point transmission system is a CPE, hence, the title.

25 MR. BLACK: Let's go to Slide 45 of Dr. Wicker's

1 presentation.

2 Q. (By Mr. Black) All right. This is -- this is your
3 Slide 45. And you quote the Court's construction of CPE:
4 Devices residing on the premises of a customer and used to
5 connect to a telephone network, including -- and then
6 there's some examples listed, correct?

7 A. That's right.

8 Q. Now, it says "including." Those are just examples,
9 right?

10 A. That's exactly right.

11 Q. The definition that we have to hit is really in the
12 first part of the sentence: Devices residing on the
13 premises of a customer, right? And used to connect to a
14 telephone network, right?

15 A. I don't agree.

16 Q. You don't agree with that?

17 If there was a new device that did not exist at
18 the time of ordinary telephones, key telephone systems,
19 PBX's, et cetera, but that came into existence years later,
20 but it was, in fact, a device residing on the premise of a
21 customer, and it was, in fact, used to connect to a
22 telephone network, that would be met by the claim, wouldn't
23 it?

24 A. What I wasn't agreeing with is that you seem to suggest
25 we don't need to look at this language, and I don't agree

1 with that.

2 Q. But do you agree with my other statement, that if a new
3 device came along that did, in fact, reside on the premises
4 of a customer and is used to connect to a telephone
5 network, that device would be covered by the claim, right?

6 A. If it satisfied the Court's construction, it would be
7 covered under the CPE language of the claim.

8 Q. The Court's language right here, right?

9 A. That's right.

10 Q. Now, when we talk about residing for an electrical
11 device, there are many things that people have in their
12 homes which today are capable of connecting to a wireless
13 network, correct?

14 A. Certainly, yes.

15 Q. You have phones, you have tablets, you have LTE
16 hotspots, right?

17 A. Now, just so I understand the question, these are
18 certainly capable of connection to a network. I don't
19 agree that all of those are CPE.

20 Q. You agree that those things connect to a telephone
21 network, right?

22 A. Yes.

23 Q. And that this claim in this patent covers wireless
24 connections from base stations to devices in the home,
25 correct?

1 A. Wireless connections to CPE in the home, yes, that's
2 right.

3 Q. So if someone has a LTE hotspot -- that's one of those
4 little boxes that doesn't have a screen on it or anything
5 but can receive wireless transmissions, and then you can
6 beam WiFi around your house -- and someone keeps it always
7 in their home, that would be a device residing on a
8 premises of a customer and used to connect to a telephone
9 network, wouldn't it?

10 A. It's -- it's not something I've thought about, but if
11 one had a device that was kept in the home, used in the
12 home for connection to a telephone network and was not, for
13 example, useful while portable, for example, while in your
14 car or something, then that could be CPE.

15 Q. So you think that if the device was always set in the
16 kitchen and never left the house until the day it died, it
17 would or wouldn't be a CPE -- I don't understand. Is that
18 a CPE or not?

19 A. If it's a device that resides on the premises, it's
20 always there, under your example, and used to connect to a
21 telephone network, then it would be CPE.

22 Q. But you say if I decided one day, you know, I'm moving
23 to a new house, and I pick it up and take it with me, now
24 it's mobile, now it's not a CPE?

25 A. That's not quite what I said.

1 So if we take a look at the examples, ordinary
2 telephones, key telephones, et cetera, they work while they
3 are fixed in the residence. They don't work while they're
4 in transit to a new residence.

5 Q. Let's say I take my mobile phone, and I irritate my
6 wife my gluing it to the kitchen counter.

7 It's now affixed to the kitchen counter. Does
8 that meet the claim limitation?

9 A. That would be -- that would be headed toward CPE. It's
10 not something I've considered, but it would cease to be a
11 mobile phone at that point.

12 Q. Well, wait. Are you -- are you stating that there's
13 a -- some language in here that says: Devices residing on
14 the premises of a customer and used to connect to a
15 telephone network but are not mobile phones? Is that how
16 you construe the claim?

17 A. No. I'm using this language right here --

18 Q. Okay.

19 A. -- devices residing on the premises.

20 Q. Well, you agree there's no exception for mobile
21 devices, right?

22 A. In this language, it doesn't say mobile devices are not
23 included.

24 Q. That's right.

25 And you have to use this construction, not adding

1 language of your own, like an exception for mobile devices,
2 right?

3 A. That's correct.

4 Q. Now, let's say I had my phone, and I glued it to the
5 counter. How long would it have to stay there for you to
6 consider it to be residing in my home?

7 A. Its functionality would have to be tied to its
8 residence in the home. So I haven't considered how long
9 it'd have to be there, but if that was its intent, to
10 remain glued to your kitchen table for the purpose of
11 providing connection to a telephone network, then I would
12 say yes, it's CPE.

13 Q. I think you said "its intent." Do you mean the phone's
14 intent?

15 A. Your intent. The phone can't have intent.

16 Q. So you're interpreting the claim to be dependent upon
17 the -- the owner's intent with respect to how long the
18 owner intends to keep the phone in the house?

19 A. No.

20 Q. Okay. How long must an owner keep the phone in the
21 house glued to the kitchen counter until it becomes the
22 CPE?

23 A. It's not something I considered.

24 Q. You had some opinions about end-user QoS. Do you
25 recall that?

1 A. Yes, I do.

2 MR. BLACK: Let's pull up Williams Slide 61,
3 please.

4 Q. (By Mr. Black) Do you recall seeing this document?

5 A. Yes, I do.

6 Q. And this is a document from Ericsson called LTE
7 Scheduler Overview -- actually this is a page out of a
8 larger document?

9 A. Yes, that's correct.

10 Q. And this is talking about the quality of service,
11 right?

12 A. That's right.

13 Q. Quality of service provided by the schedulers accused
14 of infringement in this case, correct?

15 A. I believe that is the scheduler here. Yes, that's
16 right.

17 Q. Well, my -- it says scheduler on the document, doesn't
18 it? It's hard to read? It might be a little hard to read.

19 A. It does. No, it's not hard to read, but I don't know
20 if they're talking about a different scheduler. It's my
21 recollection that this is the accused scheduler.

22 Q. This is actually from a -- from a presentation that has
23 different features and what the importance of the feature
24 is for customers, right?

25 A. That's right.

1 Q. Customers like T-Mobile, right?

2 A. That's correct.

3 Q. And at the bottom, the thing in brackets, that's the
4 thing that Ericsson's bragging about, what this thing can
5 do, right?

6 A. That's right.

7 Q. And it says: Optimize capacity while satisfying QoS
8 for everyone.

9 Correct?

10 A. That's correct.

11 Q. End-users, right?

12 A. Right. But the key language here is the optimize
13 capacity. So it's under the control of the network, but
14 hopefully they'll make everyone happy.

15 Q. Do carriers do tests to see how good the quality of
16 service is to their customers?

17 A. Yes.

18 Q. They -- they have testing protocols to make sure that
19 they don't have too many dropped calls, that the call
20 quality is acceptable, correct?

21 A. That's right.

22 Q. I think they even have a -- like a grading system for
23 the quality of voice. I don't know how they -- they do
24 this, but they get people to listen, and then they have
25 some subjective evaluation, right?

1 A. That's right. In the old days it was called toll
2 quality, and the delay could not be more than a tenth of a
3 second.

4 Q. And they derived the tenth of a second limitation by
5 doing tests on real people who -- and ask, hey, how does
6 this sound to you, right?

7 A. That's right. It's my recollection that it was done in
8 Illinois at Bell Laboratories, for example.

9 Q. And one of the things we heard in this trial so far was
10 that in bringing out Voice over LTE, T-Mobile was, of
11 course, concerned -- initially had some difficulties in
12 getting the system to work well, they had dropped calls,
13 the kinds of things you have when you normally start a new
14 system, right?

15 A. That's right. I remember hearing that.

16 Q. But they -- they ultimately settled on using the Voice
17 LTE -- over LTE technology, VoLTE, right?

18 A. That's right.

19 Q. And in order to make that technology work, they needed
20 to set voice as Priority No. 1, correct?

21 A. That's right, QCI 1.

22 Q. Right. And it's important to T-Mobile because we heard
23 testimony today about how much they care about their
24 customers and the service they provide, right?

25 A. That's certainly true.

1 Q. You provided some testimony about the benefits, or, in
2 your view, lack thereof to telecommunications' carriers
3 like T-Mobile from using the invention in this case,
4 correct?

5 A. That's correct.

6 Q. In order to gather that information for your 462-page
7 report, you spoke to some folks at Ericsson, right?

8 A. Yes.

9 Q. But you didn't speak to anybody at T-Mobile, right?

10 A. I don't think I did on that specific issue.

11 Q. But the benefits at issue accrue to T-Mobile, right?

12 A. The benefits involved with a solid functioning system,
13 if that's what you're asking, would accrue to Ericsson and
14 to T-Mobile and to the people using the system.

15 Q. I mean, Ericsson sells equipment, right?

16 A. That's right.

17 Q. And then they install the equipment for T-Mobile,
18 right?

19 A. Yes.

20 Q. And they run tests and servicing from time to time,
21 correct?

22 A. That's right.

23 Q. And when they do that, they run the methods that have
24 been accused of infringement, but which you deny infringe,
25 correct?

1 A. They certainly run tests on their equipment to make
2 sure it's working as it's supposed to.

3 Q. But the benefit -- the financial, the economic benefit,
4 the big dollars really accrue to T-Mobile for use of the
5 VoIP technology if we're right?

6 A. I don't agree.

7 Q. Well, I know you disagree that Dr. Jorgensen invented
8 anything useful, that these patents don't cover anything in
9 this case, that we're all here for very little reason.

10 But if we're right that the patent is infringed
11 and the Defendants are wrong about the patents of validity
12 because they can't meet their clear and convincing evidence
13 burden, then you will have provided opinions on financial
14 benefits which would be an input to the economic experts'
15 opinions, correct?

16 A. That is correct.

17 Q. In order to do that, you had to give some thought to
18 the value to the Defendants in this case, right?

19 A. I'm sorry, the value of what?

20 Q. The value of the technology to the Defendants in this
21 case?

22 A. That's correct.

23 Q. And the Defendants in this case are T-Mobile and
24 Ericsson, right?

25 A. That's right.

1 Q. You spoke to Ericsson, right?

2 A. That's right.

3 Q. Whose position has been, we sold some equipment.

4 That's what the case is about, right?

5 A. And they're standing behind it, yes.

6 Q. Yes. And -- but you didn't talk to T-Mobile even
7 though it should be -- isn't it fairly obvious that the
8 real benefits here would accrue to T-Mobile?

9 A. I don't agree. And the expertise as to how the base
10 station works resides with Ericsson, so it's natural
11 I would talk to them.

12 Q. But the benefits accrue to T-Mobile, right?

13 A. Certainly T-Mobile does get benefits from what they
14 purchase, but Ericsson benefits, as well as the customers.

15 Q. Right. But you didn't talk to or provide any opinions
16 about the benefits to T-Mobile that I heard? You didn't
17 talk to anybody from T-Mobile?

18 A. That's correct.

19 Q. Now, we had some complicated testimony on the uplink
20 and downlink frequencies and allocations of bandwidth, and
21 do you recall that?

22 A. Yes, I do.

23 Q. And that was on the -- which patent was that? That was
24 the '517 --

25 A. '517 patent.

1 Q. -- Claim 1, right?

2 A. Yes, that's correct.

3 Q. So you were here when Dr. Williams went through a very
4 detailed explanation of what happens in the base station
5 and how the downlink scheduler and uplink scheduler talk to
6 each other, right?

7 A. Yes.

8 MR. BLACK: And if I could just put that on the
9 ELMO. Thank you.

10 Q. (By Mr. Black) He had a number of slides on this
11 topic, right?

12 A. Yes, he did.

13 Q. And what he showed was that the downlink scheduler and
14 the uplink scheduler actually do have to coordinate with
15 each other in the course of transmitting and receiving
16 information, right?

17 A. Right. They both make use of this downlink control
18 channel. So this PDCCH, this physical downlink control
19 channel.

20 Q. Right. They have a single channel that they compete
21 for, right?

22 A. That's not true.

23 Q. That channel is resource constrained, correct?

24 A. That's correct.

25 Q. That channel, therefore -- what that means, is that

1 it's resource constrained, is that sometimes either the
2 uplink scheduler or the downlink scheduler is not going to
3 get the bandwidth that it wants, right?

4 A. That's not correct.

5 Q. They -- if they can't send grants down the PDCCH,
6 either the uplink scheduler or the downlink scheduler will
7 not be able to fully service the calls that they are
8 responsible for; isn't that right?

9 A. That's true, but there's no evidence that ever happens.

10 Q. Dr. Williams testified that there's resource constraint
11 in the PDCCH, correct?

12 A. Yes, he did.

13 Q. You did not contradict him or provide any testimony on
14 that point in your direct examination, right?

15 A. It -- it is true that it's a resource constrained
16 channel. I did not address this because I didn't think it
17 was relevant.

18 Q. He had -- he had four or five slides on this
19 correct? Yes or no.

20 A. He did, yes.

21 Q. You haven't been involved in -- actually, I don't know
22 how many you were involved in. You've testified in 28
23 cases in the last five years. How many cases have you been
24 involved in where you haven't testified?

25 A. I haven't counted them, but probably I've been involved

1 with a hundred cases in the last 20-something years.

2 Q. Now, you also had some views about whether or not the
3 uplink and the downlink frequencies had to be sort of
4 swapped between each other, correct?

5 A. That's right.

6 Q. And your view was that they have to be allocated
7 dynamically between the uplink and the downlink, right?

8 A. That's right.

9 Q. Okay.

10 MR. BLACK: I tell you what, why don't we do this:
11 Let's go to the '517, and please bracket Claim 1 and 2.

12 Q. (By Mr. Black) Okay. So in your view, it has to be
13 dynamic scheduling, right? You have to have dynamic uplink
14 and downlink control. That's what you just said. And that
15 element actually appears in Claim 2, correct?

16 A. That's correct.

17 Q. So this is a dependent claim, correct?

18 A. That's right.

19 Q. And you know what that is, right?

20 A. Yes, I do.

21 Q. Dependent claims are narrower than the independent
22 claims, right?

23 A. Generally, yes.

24 Q. So in order to establish infringement, IV absolutely
25 has to and has undertaken the burden of proving that

1 everything that in Claim 1 is in the Ericsson system,
2 correct? We've undertaken that burden, right?

3 A. That is your burden. I don't agree that you've met it.

4 Q. Understood.

5 But we do not have a burden to prove the things in
6 Claim 2, which has not been asserted, correct?

7 A. That's correct.

8 Q. And Claim 2 requires dynamically allocating between the
9 uplink and the downlink, correct?

10 A. Yes, it does.

11 Q. You also had some opinions about the analysis of
12 Dr. Chrissan, correct?

13 A. That's correct.

14 Q. You had a few things to say about Turina certainly,
15 that reference, but you didn't name any of the other
16 patents or provide any specific analysis of Dr. Chrissan's
17 big chart with the -- with the -- all the colors on it and
18 what he spent most of his examination on.

19 A. Well, I talked about specific entries in that chart,
20 but I didn't talk about the whole chart, no.

21 Q. Did you talk about any specific patent other than
22 Turina?

23 A. I talked about Turina. That was the specific patent.

24 Q. Right. That was the one patent out of the 18, right?

25 A. That's right.

1 Q. The other 17, you didn't provide any testimony on,
2 correct?

3 A. I characterized his process generally, but I didn't
4 talk about those patents individually.

5 Q. Absolutely. You criticized his process, didn't you?

6 A. That's right.

7 Q. You thought it was an invalid process, correct?

8 A. I thought it had flaws. I thought it was biased.

9 Q. And you thought it was biased, and you picked out one
10 patent that you criticized him on, and that was Turina,
11 correct?

12 A. That's right.

13 Q. And you elected not to give any opinions about the
14 other 17, correct?

15 A. That's right. I thought Turina was demonstrative of
16 the problem.

17 Q. These are Ericsson patents, right?

18 A. That's right.

19 Q. You didn't make any effort to speak to people from
20 Ericsson, talk to Ericsson engineers, or do anything to
21 determine whether these Ericsson patents were any good,
22 right?

23 A. I read the patents. They were the patents that
24 Dr. Chrissan chose to analyze, and that's why I looked at
25 them.

1 Q. So you did read the patents.

2 A. The 18, yes.

3 Q. Oh. But you didn't provide any opinions in court on 17
4 of them, right?

5 A. No. I talked about one that I chose from the 18.

6 Q. You also had some testimony about Ericsson -- we keep
7 hearing about the European Patent Office. Is that relevant
8 to infringement?

9 A. It can be indirectly, but the claims at issue are U.S.
10 patent claims, if that's what you're asking.

11 Q. That the European Patent Office is giving a nomination
12 to some Ericsson folks could be relevant to whether
13 Dr. Jorgensen's patents are infringed in this case?

14 A. No.

15 Q. No.

16 A. The European Patent Office's award to Ericsson shows
17 that Ericsson is a highly inventive company, and they're
18 very active in LTE technology development.

19 MR. BLACK: If I could put --

20 THE COURT: Dr. Wicker, you answered that when you
21 said no. The question didn't call for an observation about
22 the impact of the awards to Ericsson. You need to limit
23 your answers to the questions asked.

24 THE WITNESS: Yes, Your Honor.

25 MR. BLACK: Could we put up -- could we put the

1 ELMO up? It would be easier this way.

2 Q. (By Mr. Black) Do you remember this slide that was
3 provided this morning by -- by -- in the testimony?

4 A. Yes.

5 Q. Single largest contributor of ideas to the LTE
6 standard, correct?

7 A. That's correct.

8 Q. And they've been trying -- Ericsson has been trying to
9 imply all along that they have all these patents that cover
10 the LTE standard, correct?

11 A. Yes. They have declared a number of patents essential.

12 Q. But the patent standards bodies, they don't make
13 essentiality determinations on their own, correct?

14 A. No, they do not.

15 Q. In fact, all people do is they check a box on a form
16 and send it in that says, this might be essential to the
17 standard, and I, therefore, am willing to license it to
18 third parties, right?

19 A. Well, they don't just check a box. They determine
20 whether or not it's appropriate to check the box, and then
21 they do so or do not.

22 Q. Right. But that's an -- that's an Ericsson
23 determination, not a standards body determination, right?

24 A. That's right.

25 Q. And there's no evidence in this case from you that any

1 of the Ericsson patents actually would cover an LTE
2 standard, correct?

3 A. That's right. I did not do that analysis.

4 Q. In fact, you were very careful in your report, and I --
5 which I would note stated, as you did on your slide --
6 you're very careful in your testimony, as well. You said
7 that Ericsson has hundreds of potential LTE essential
8 patent families, correct?

9 A. That's right.

10 Q. Because the only way to know whether a patent really
11 covers a standard is to do the kind of infringement
12 analysis that we did in the check-the-box work that
13 Dr. Williams did yesterday, correct?

14 A. Yes. You have to do a complete analysis.

15 Q. If you want to run around telling people patents are
16 infringed, you've got to do a complete analysis and check
17 all the boxes on all the claims, right?

18 A. That's true, as well.

19 Q. Did you talk to any of the Ericsson European Patent
20 Office finalists?

21 A. I'm sorry. Can you rephrase the question?

22 Q. The finalists in the European Patent Office Patent of
23 the Year awards that we've been hearing so much about, have
24 you spoken to any of those folks?

25 A. No.

1 Q. Have you seen any of them here today?

2 A. No.

3 Q. Are you sure?

4 A. No. I'm not aware that any of those finalists are here
5 today.

6 MR. BLACK: Pass the witness.

7 THE COURT: Approach the bench, counsel.

8 (Bench conference.)

9 THE COURT: How long do you think your redirect is
10 going to be?

11 MR. KUBEHL: Couple of minutes.

12 THE COURT: Okay. Thank you.

13 (Bench conference concluded.)

14 THE COURT: Let's proceed with redirect
15 examination by the Defendant.

16 REDIRECT EXAMINATION

17 BY MR. KUBEHL:

18 Q. Dr. Wicker, you were asked some questions about
19 Mr. Skarby's testimony today, and there was some suggestion
20 of somehow things being sprung on the Plaintiff.

21 In your report, you identify some deposition
22 transcripts of Mr. Skarby. So did Mr. Skarby get deposed
23 by IV for two full days in this case?

24 A. Yes, he did.

25 Q. You also identify about eight notices of deposition

1 that IV sent to Ericsson. Those are called 30(b)(6)
2 notices, where they had particular topics they wanted to
3 talk about, right?

4 A. That's correct.

5 Q. And one of the topics that they wanted to talk to
6 Ericsson about was how the system worked, right?

7 A. That's correct.

8 Q. And one of the topics they wanted to talk about was the
9 reasons that Ericsson had for its claim that it does not
10 infringe this patent; is that right?

11 A. That's correct.

12 Q. And Mr. Skarby was the corporate representative for
13 Ericsson on that -- on those topics, wasn't he?

14 A. That's correct.

15 Q. And he was deposed for two full days by IV, wasn't he?

16 A. That's right.

17 Q. And how many questions did IV ask on cross-examination
18 today of Mr. Skarby?

19 A. I don't think they asked any.

20 Q. You were asked some questions about tests that you had
21 ordered, and it was suggested that maybe those were not
22 timely. Did you explain your testing and your results and
23 your parameters in your report?

24 A. Yes, I did.

25 Q. Was that filed timely under the deadline that the Court

1 in this case ordered to produce that kind of information?

2 A. Yes, my report was filed on time.

3 Q. Did IV then go and take an entire deposition of you,
4 including on that subject matter?

5 A. Yes, they did.

6 Q. You were asked about the '629 patent and -- and the
7 test results. And you were asked questions about if -- if
8 they can just show that just one time there's a
9 40-millisecond gap, followed by a 40-millisecond, IV wins.
10 Do you agree or disagree with that?

11 A. I disagree with that.

12 Q. Why?

13 A. There are four steps in that particular claim, and you
14 have to practice all four steps. Just because there are
15 consistent intervals, it does not follow that there are
16 reservations of a second -- sorry, of a first slot in a
17 future frame and a second slot in a subsequent frame to
18 that.

19 All they've shown is that there are, on occasion,
20 successive consistent intervals. That's not all the claim
21 calls for. So, no, they don't win just by showing
22 consistent intervals.

23 Q. When the '517 patent was filed in 1999, that's the one
24 that in the title of the patent it says CPE, and I think
25 you got criticized for calling it the CPE patent?

1 A. Yes, that's correct.

2 Q. Did mobile phones exist in 1995 -- 1999 when that was
3 filed?

4 A. In 1999, yes, they did.

5 Q. And did Mr. Jorgensen claim in his invention mobile
6 phones?

7 A. No, he did not mention mobile phones in his CPE patent.

8 Q. What term did he use?

9 A. CPE, customer premises equipment.

10 Q. You were here when Dr. Jorgensen testified; is that
11 right?

12 A. Yes, I was.

13 Q. And on that day, I believe we saw the single document
14 in the case -- in this case where there's been a document
15 where someone has actually called something a CPE device.
16 Do you recall that?

17 A. Yes, I do.

18 Q. I think that was Defendant -- Defendants' Exhibits 137.

19 MR. KUBEHL: You don't have to pull it up.

20 Q. (By Mr. Kubehl) If the jury wants to look at it, it's
21 Defendants' Exhibits 137.

22 How is the CPE device described in that document?

23 A. It was not a mobile phone.

24 Q. You were asked questions about standards essential
25 patents and declarations of that?

1 A. Yes.

2 Q. And so when a participant in a standards body declares
3 their patent to be essential or potentially essential,
4 I think -- I think potentially essential is perhaps the
5 language that the form is -- it says on the form for the
6 standards body; is that right?

7 A. That's right.

8 Q. And so when a company who is participating makes a
9 standard essential declaration of their patent, are they
10 supposed to have a good-faith belief that they really can
11 check that box, that this is potentially essential?

12 A. Yes. There is a requirement, for example, in the ETSI
13 rules -- that's a standardization body -- that this be a
14 good-faith declaration.

15 Q. You were asked some questions about the PD, D as in
16 dog, CCH?

17 A. That's right.

18 Q. What does D stand for in that?

19 A. Downlink. That was the control channel that I pointed
20 to. The PDCCH is the physical downlink control channel.

21 Q. Is that a one-way channel or a two-way channel?

22 A. It's a one-way channel.

23 Q. Can the uplink -- can the uplink scheduler transmit on
24 the PDCCH?

25 A. The PDCCH can only be used for downlink traffic. You

1 cannot make an uplink transmission on that channel.

2 Q. In the -- you were asked about a number of cases. You
3 said you had given testimony in 28 cases over the last five
4 years or so?

5 A. Yes.

6 Q. Compared to other cases, is the infringement case in
7 this case a close one?

8 A. No.

9 MR. KUBEHL: I'll pass the witness.

10 THE COURT: Additional cross?

11 MR. BLACK: Two points, Your Honor, quickly.

12 RECROSS-EXAMINATION

13 BY MR. BLACK:

14 Q. The -- the PDCCH is a downlink channel because it sends
15 control information to the phone, correct?

16 A. That's right.

17 Q. The data is actually sent on uplink and downlink radio
18 frequencies that, in your view, are separated by a guard
19 band, right?

20 A. That's right, they're separate channels.

21 Q. But the control information that governs how the
22 downlink and the uplink channel will be controlled is
23 transmitted to the phone over a single combined channel,
24 correct?

25 A. I'm not sure what you mean by combined. There is a

1 single downlink control channel in most cells that is used
2 for downlink control information.

3 Q. You did -- you did not mean to suggest that information
4 about the uplink scheduler is not sent to the phone on the
5 downlink PDCCH channel, did you?

6 A. No.

7 Q. Would it surprise you to know that there are studies
8 that show that companies over declare patents to the
9 standards bodies and that many of the patents that are
10 claimed to cover the standards are -- or are claimed to be
11 potentially relevant to the standards actually don't cover
12 the standards?

13 A. I'm familiar with those reports, yes.

14 Q. Yes. Thank you.

15 MR. WARD: May we approach, Your Honor?

16 THE COURT: Approach the bench, counsel.

17 (Bench conference.)

18 THE COURT: Are you passing -- are you passing the
19 witness, Mr. Black?

20 MR. BLACK: Close. What am I supposed to do with
21 that, you know?

22 THE COURT: You're supposed to stand up and
23 object.

24 MR. BLACK: If I do that, it makes me look like
25 I'm afraid of it, Your Honor. He keeps doing this

1 throughout the trial. If I stand up and object on a
2 question like that -- I mean, I can't do that.

3 THE COURT: Where is that noise coming from? It's
4 about the fifth time I've heard that beep out there. I'll
5 deal with that later.

6 MR. BLACK: I can't --

7 THE COURT: I understand, but -- I mean --

8 MR. WARD: Mr. Black went to stand up. It was so
9 quick. It was planned. It was improper for him to say,
10 out of all the cases you've testified in, is this
11 infringement even close? And it was planned for him to
12 say, no. And that is improper. This has happened
13 repeatedly with Mr. Kubehl.

14 MR. BLACK: What's my choice? I jump up, and then
15 the jury thinks I'm worried.

16 THE COURT: Well, Mr. Black, I -- the Court
17 responds to objections. I don't inject myself unilaterally
18 into a case.

19 MR. BLACK: I understand, Your Honor, but the
20 system --

21 THE COURT: I understand your frustration.
22 What's your response, Mr. Kubehl?

23 MR. KUBEHL: It was not a planned response. It's
24 insulting for you to say that.

25 THE COURT: Do you think that was a relevant

1 question in this case, had anything to do with the issues
2 before this jury?

3 MR. KUBEHL: I think it's -- I think it's proper
4 for him to express how strongly he feels about his
5 opinions.

6 MR. WARD: That's unbelievable that a licensed
7 attorney would stand before you and say that he's comparing
8 infringement in this case to all his other -- experts to
9 all his other cases and this is the weakest infringement
10 case he's ever seen.

11 MR. KUBEHL: That's not what he said.

12 MR. WARD: That was --

13 MR. KUBEHL: I said, based on your experience.

14 MR. WARD: Your Honor, it doesn't matter. That's
15 the implication that's improper.

16 THE COURT: What are you suggesting?

17 MR. WARD: That you instruct the jury that the
18 question and the answer from Mr. Kubehl about the strength
19 of this case compared to the others was totally improper,
20 and the jury is instructed to disregard it.

21 MR. BLACK: The jury should decide this case based
22 on the evidence in this case. Your Honor can do it.

23 THE COURT: Well, quite honestly, it should have
24 been raised at the time, but I think that there's enough
25 substance behind your objection that I'll give the

1 instruction.

2 MR. WARD: Thank you, Your Honor.

3 MR. BLACK: Thank you, Your Honor.

4 (Bench conference concluded.)

5 MR. BLACK: Sorry, Your Honor. I hadn't formally
6 passed the witness. One of the exhibits I used was PX-29.

7 Pass the witness.

8 THE COURT: All right.

9 MR. KUBEHL: May the witness be excused?

10 THE COURT: Not yet. Have a seat, Mr. Kubehl.

11 Ladies and gentlemen of the jury, at the end of
12 the last examination of Dr. Wicker by Mr. Kubehl for the
13 Defendants, the following was the concluding exchange.

14 The question was asked: You were asked about the
15 number of cases you said you had given testimony in 28
16 cases over the last five years or so.

17 Dr. Wicker said: Yes.

18 Then Mr. Kubehl asked: Question: Compared to
19 other cases is the infringement case in this case a close
20 one?

21 Dr. Wicker answered: No.

22 This case is not about 28 other cases, it's
23 about this case and the facts of this case. That's --
24 that's an irrelevant and improper question, and I'm
25 instructing you to disregard that exchange between

1 Mr. Kubehl and Dr. Wicker that I've just recited to
2 you, all right?

3 Now, Mr. Kubehl, do you have redirect of the
4 witness, given that the Plaintiff has passed.

5 MR. KUBEHL: We have no redirect, Your Honor.

6 THE COURT: All right. Then in that case,
7 Dr. Wicker, you may step down.

8 THE WITNESS: Thank you, Your Honor.

9 MR. KUBEHL: May the witness be excused, Your
10 Honor?

11 THE COURT: Is there objection?

12 MR. BLACK: No, Your Honor.

13 THE COURT: Dr. Wicker, you are excused, which, as
14 I'm sure you know, means you're free to leave, or you're
15 free to stay.

16 THE WITNESS: Thank you, Your Honor.

17 THE COURT: All right. Ladies and gentlemen,
18 before the next witness is called, we're going to take a
19 recess at this juncture.

20 Simply close your books, if you will, and leave
21 them in your notebooks and leave them there in your chairs.
22 Follow all my instructions, including not to discuss the
23 case among yourselves, and we'll be back to continue with
24 the Defendants' next witness shortly.

25 The jury is excused for recess.

1 COURT SECURITY OFFICER: All rise.

2 (Jury out.)

3 THE COURT: All right. Dr. Acampora is next; is
4 that correct?

5 MR. BECKER: Yes, Your Honor.

6 THE COURT: Who -- do you have him on direct?

7 MR. BECKER: Yes, sir.

8 THE COURT: And you expect this to be
9 approximately a two-hour direct examination?

10 MR. BECKER: It should be two hours or less, Your
11 Honor.

12 THE COURT: Two hours is your best estimate?

13 MR. BECKER: I think so.

14 THE COURT: I'm not trying to hold you to an exact
15 number.

16 MR. BECKER: I'm trying -- I'm trying to get it in
17 in an hour and a half, but...

18 THE COURT: Between the two.

19 MR. BECKER: It kind of can vary, depending on the
20 questions and answers.

21 THE COURT: All right. That's fine. That's what
22 I needed to know.

23 All right. We will take a short recess. I'll
24 return and then we'll have the Defendants call their next
25 witness.

1 The Court stands in recess.

2 COURT SECURITY OFFICER: All rise.

3 (Recess.)

4 (Jury out.)

5 COURT SECURITY OFFICER: All rise.

6 THE COURT: Be seated, please.

7 Do I understand, Defendants, we have two short --
8 relatively short depositions next?

9 MS. SMITH: Yes, Your Honor.

10 THE COURT: All right. Let's bring in the jury,
11 please, Ms. Denton.

12 COURT SECURITY OFFICER: All rise.

13 (Jury in.)

14 THE COURT: Welcome back, ladies and gentlemen.
15 Please have a seat.

16 Defendants, call your next witness.

17 MS. SMITH: Your Honor, Defendants call
18 Mr. Dean Munyon. The run time on this video deposition --
19 Defendants' time is 4 minutes and 57 seconds. Plaintiff's
20 time is zero. Exhibits to be introduced are Plaintiff's
21 Exhibit 3, Defense Exhibit 6, and Defense Exhibit 159.

22 THE COURT: Proceed with this witness by
23 deposition.

24 MS. SMITH: Thank you, Your Honor.

25 (Videoclip played.)

1 QUESTION: Good afternoon.

2 ANSWER: Good afternoon.

3 QUESTION: Please state your name for the record.

4 ANSWER: Dean Munyon.

5 QUESTION: All right. I believe we were talking
6 about Exhibit 1, and you said that you recognized the
7 document, correct?

8 ANSWER: Yes.

9 QUESTION: Okay. And I wanted to direct your
10 attention to Page 9. And I'll direct your attention to
11 Topic 4 with the numeral "4" beside it. If you want to
12 take a moment to read that.

13 ANSWER: Okay.

14 QUESTION: The topic states, the prosecution of
15 the applications that issued and to each of the asserted
16 patents and any related patents and/or applications,
17 including without limitation the drafting of the
18 applications, all modifications and amendments to the
19 applications, including to their claim specification and
20 figures, the decision to disclose or not disclose any prior
21 art, all communications with the PTO relating to the
22 applications, and all documents relating to the foregoing.

23 Did I read that correctly?

24 ANSWER: You did.

25 QUESTION: Do you understand you're here today to

1 testify as IV's corporate representative on this topic,
2 subject to IV's objections?

3 ANSWER: Yes. And then in addition to the -- the
4 personal notice, as well, right?

5 QUESTION: If I refer to this patent as the '206
6 patent, you'll understand that to mean the RE46,206?

7 ANSWER: I will.

8 QUESTION: If I refer to the '21 -- '218 patent,
9 you'll understand that I'm referring to U.S. Patent
10 No. 7,251,218?

11 ANSWER: I will.

12 QUESTION: What's the application number of the
13 '218 patent?

14 ANSWER: Reading from the face of the patent at
15 Item 21, the application number -- you asked for the
16 application number?

17 QUESTION: Yes.

18 ANSWER: Yes. It's 10/241,454.

19 QUESTION: If I refer to the '454 patent
20 application, you'll understand that to mean Application
21 No. 10/241,454?

22 ANSWER: Yes, I will.

23 QUESTION: On September 12th, 2002, prior counsel
24 filed Application No. 10/241,454 with the Patent Office,
25 correct?

1 ANSWER: Yes.

2 QUESTION: A copy of the specification for the
3 '454 patent application was not filed with the Patent
4 Office on September 12th, 2002.

5 ANSWER: The first sentence says: The document
6 submitted on September 12th, 2002, did not include a copy
7 of the specification.

8 QUESTION: And that's correct, right?

9 ANSWER: The -- yes, the -- the -- that's correct.

10 QUESTION: A copy of the detailed description
11 of -- within the specification was not filed on
12 September 12th, 2002?

13 ANSWER: Correct.

14 QUESTION: When the '454 patent application was
15 filed without a copy of the specification on
16 September 12th, 2002, a copy of a description of the best
17 mode was also not filed on that date?

18 ANSWER: I would say correct, but I don't want to
19 make that -- to have that be sort of any admission that
20 there is some best mode which I'm not aware.

21 QUESTION: And when the '454 patent application
22 was filed without a copy of the specification on
23 September 12th, 2002, a copy of a description of how to
24 make and use the invention also was not filed?

25 ANSWER: Because there was no specification that

1 was included, the answer would be yes.

2 QUESTION: And the USPTO mailed a notice of
3 incomplete non-provisional application on
4 October 15th, 2002?

5 ANSWER: That is what paragraph -- the first
6 sentence of Paragraph 6 states.

7 QUESTION: Do you have any reason to doubt that
8 that's not true?

9 ANSWER: I don't.

10 QUESTION: The USPTO's notice of incomplete
11 non-provisional application indicated that a copy of the
12 specification for the '454 patent application was not filed
13 with the USPTO on September 12th, 2002?

14 ANSWER: I don't have that document in front of
15 me, but Paragraph 6 of Exhibit 5 does state that the notice
16 indicated that the specification of the '454 application
17 was missing.

18 QUESTION: Prior counsel filed a complete copy of
19 the specification for the '454 patent application on
20 October 24th, 2002?

21 ANSWER: That's correct.

22 QUESTION: Before October 24th, 2002, a complete
23 copy of the specification for the '454 patent application
24 had not been filed with the Patent Office?

25 ANSWER: That is correct.

1 QUESTION: October 24th, 2002, was the first time
2 when prior counsel filed a complete copy of the
3 specification for the '454 patent application?

4 ANSWER: That is correct.

5 QUESTION: And the '454 application issued as the
6 '218 patent?

7 ANSWER: Yes.

8 QUESTION: The '218 patent issued with a filing
9 date of October 24th, 2002?

10 ANSWER: Correct.

11 As well as the -- the face of the patent, yes, at
12 Line Item 22 says: Filed October 24th, 2002.

13 (Videoclip ends.)

14 THE COURT: Does that complete this witness by
15 deposition?

16 MS. SMITH: Yes, Your Honor.

17 THE COURT: Call your next witness.

18 MS. SMITH: Your Honor, Defendants call Mr. David
19 Paranchych. Defendants's run time is 1 minute, 11 seconds,
20 and Plaintiff's run time is zero.

21 THE COURT: All right. Proceed with this witness
22 by deposition.

23 MS. SMITH: Thank you, Your Honor.

24 (Videoclip played.)

25 QUESTION: Dr. Paranchych, could you please state

1 your full name for the record, please?

2 ANSWER: David Paranchych.

3 QUESTION: And do you understand that you're here
4 to testify on behalf of Intellectual Ventures or IV?

5 ANSWER: Yes.

6 QUESTION: Okay. Starting with your post high
7 school/college education, what was -- what's your
8 educational background?

9 ANSWER: I received a Bachelor of Science in
10 electrical engineering and -- at the University of Alberta
11 in Edmonton in Canada in 1990, and then I proceeded to
12 graduate studies in electrical and computer engineering at
13 Queens University in Kingston, Ontario, also in Canada, and
14 received my Ph.D. in 1997.

15 QUESTION: Did you study ATM systems while working
16 on your Ph.D. or Bachelor's program?

17 ANSWER: I do remember ATM, yes.

18 QUESTION: What does ATM stand for?

19 ANSWER: ATM stands for asynchronous transfer
20 mode.

21 QUESTION: You stated that a packet is a sequence
22 of bits, correct?

23 ANSWER: One definition could be a sequence of
24 bits, yes.

25 QUESTION: And could -- that definition of ATM

1 cell is a packet, correct?

2 ANSWER: Under that definition, an ATM cell would
3 also be a packet.

4 QUESTION: So an ATM cell could be referred to as
5 a packet, correct?

6 ANSWER: Some people might refer to it as a
7 packet, yes.

8 (Videoclip ends.)

9 THE COURT: That completes this witness by
10 deposition?

11 MS. SMITH: Yes, Your Honor.

12 THE COURT: All right. Defendants, call your next
13 witness.

14 MR. BECKER: Your Honor, defense calls Dr. Tony
15 Acampora.

16 THE COURT: All right. Dr. Acampora, if you'll
17 come forward and be sworn, please?

18 (Witness sworn.)

19 THE COURT: Please come around, sir, and have a
20 seat on the witness stand.

21 MR. BECKER: Your Honor, may I approach with the
22 witness binder?

23 THE COURT: You may.

24 Mr. Becker, you may proceed.

25 MR. BECKER: Thank you.

1 ANTHONY ACAMPORA, PH.D., DEFENDANTS' WITNESS, SWORN

2 DIRECT EXAMINATION

3 BY MR. BECKER:

4 Q. Good afternoon, Dr. Acampora.

5 A. Good afternoon.

6 Q. Could you state your full name for the jury?

7 A. Anthony Acampora.

8 Q. And just give a brief introduction to the concept that
9 you're going to be discussing today if you wouldn't mind.

10 A. I'm going to be talking about my analysis concerning
11 the validity of three patents, the three patents-in-suit
12 that we've been hearing about all week.

13 Q. What does it mean for a patent to be valid or invalid
14 for the purposes of your analysis?

15 A. Okay. So valid or invalid, I actually applied two
16 criteria, the same criteria that Judge Gilstrap had
17 mentioned when he provided instructions to the jury, one of
18 those being is the patent anticipated, meaning is it new?
19 Did somebody else come up with it first? Is there one
20 publication, a patent -- something published in the old
21 literature, a system that discloses all the elements of the
22 asserted -- of any of the asserted claims or all of the
23 asserted claims?

24 The second criteria that I considered was whether
25 it was obvious. Would a person of skill in the art reading

1 the patent, understanding what the patent is about and
2 understanding what the claims are about, would that
3 person -- would it be obvious to a person that all the
4 elements were disclosed in some combinable -- easily
5 combinable fashion by the prior art? And those are the two
6 criteria that I considered.

7 MR. BECKER: Mr. Patterson, could you go to
8 Slide 3, please?

9 Q. (By Mr. Becker) Do you have a summary of your opinions
10 prepared to present to the jury?

11 A. I do.

12 Q. What is the summary of your opinions?

13 A. Okay. The '206 patent --

14 THE COURT: Just a minute --

15 A. -- it's my opinion --

16 THE COURT: Just a minute.

17 Before the witness is going to give his ultimate
18 opinions, are you going to qualify him as an expert?

19 MR. BECKER: Yes, sir.

20 THE COURT: Let's -- let's get him qualified as an
21 expert and then we'll get him to say what his opinions are.

22 MR. BECKER: Yes, sir.

23 THE COURT: Thank you.

24 MR. BECKER: Yes, Your Honor.

25 Q. (By Mr. Becker) Before we get into the -- the

1 presentation today, could you give the jury an introduction
2 to yourself?

3 A. Well, okay. On a personal level, I was born in
4 Brooklyn, New York, a long time ago. I met my wife when we
5 were both in our early teens. We got married. We've been
6 married now for 50 years. And we have two children. We
7 raised them in suburban New Jersey, and eventually when the
8 children left home to go to school, they settled in
9 California a few years after that. My wife and I followed
10 them out west, and we now live in sunny Southern
11 California.

12 Q. Thank you. Would you please give the jury a brief
13 overview of your professional career?

14 A. Sure. I received all my degrees, including my Ph.D.,
15 in electrical engineering from what was the Polytechnic
16 Institute of Brooklyn. Now they call it New York
17 University.

18 I went to work at Bell Laboratories -- actually I
19 was working at Bell Laboratories while I was finishing up
20 my graduate studies at Brooklyn College. From Bell Labs,
21 I went to Columbia University.

22 I was a professor of electrical engineering and
23 the director of the Center for Telecommunications Research.
24 It was a rather large engineering research center that was
25 sponsored by the telecommunications industry and by the

1 National Science Foundation, part of the federal
2 government.

3 I was then recruited by the University of
4 California in San Diego. It didn't take much. We were
5 looking to go to California. And I was recruited, became a
6 professor there and the first director of a brand new
7 center, the Center For Wireless Communications.

8 I'm now professor emeritus of UCSD, and I'm a
9 fellow of the IEEE.

10 Q. Thank you, Dr. Acampora.

11 Could you tell us a little bit more about your
12 time at Bell Labs?

13 A. Yeah. So at Bell Laboratories, I was in basic research
14 on a variety of topics in telecommunications, fiberoptic
15 communications, satellite communications, different types
16 of radio communications, cellular communications.

17 I eventually became a senior manager at Bell
18 Laboratories managing a group of probably about
19 60 professionals with advanced degrees and maybe 20 staff
20 people covering basically the same topics that I just
21 described, also some Internet technologies, network
22 management and control. It was all in the field of
23 telecommunications.

24 Q. Thank you, Dr. Acampora.

25 Can you tell us a little about the Center for

1 Telecommunications Research?

2 A. Yeah. Well, I already said a little bit. This was
3 funded by the National Science Foundation and by the
4 telecommunications industry, and it was part of what was
5 then a new program from the National Science Foundation.

6 And it had been -- the National Science Foundation
7 had been funding basic research in American universities
8 and still does for quite some time. And NSF was looking
9 for a better bang for their bucks.

10 They were trying to come up with a mechanism to
11 couple academic research with commercial practice.

12 So this new concept was born and became known as
13 the Engineering Research Center Program. Columbia
14 University was one of the first to be awarded such a grant.
15 It was the Center for Telecommunications Research.

16 The overall objective is to transfer technology
17 more quickly from the university to commercialization to
18 help the nation's economic competitiveness, and the program
19 has been pretty successful.

20 Q. And it says here you're an IEEE fellow?

21 A. I am.

22 Q. And is that the same as Dr. Wicker explained?

23 A. One and the same, yes.

24 Q. What can you tell us about your publications?

25 A. Well, I'm the inventor or co-inventor on 40 U.S.

1 patents. I have over 170 publications in the open
2 literature, most of those -- maybe all of those
3 peer-reviewed. And about half of them are in the field of
4 wireless communications, and the other half are in some
5 other aspect of telecommunications, fiberoptic
6 communications, Internet technologies, things of this type.

7 Q. And what are the general technologies of the -- of your
8 patents?

9 A. As I said, half -- half of them were in wireless
10 communications; half of them are in other aspects of
11 telecommunications.

12 Q. And it says here you're an author of a text titled
13 Broadband Networks. What can you tell us about your book?

14 A. Yeah. So that book was published in 1994. It was one
15 of the first books on what was, at that time, the new
16 topics in broadband networks.

17 And what I attempted to do is summarize what the
18 state of the art was at that point in time considering the
19 contributions that others had made and also some of my
20 other contributions.

21 Q. And could you give the jury a little more detail about
22 what your book was about.

23 A. Okay. So this is the jacket cover from my book that
24 you see on the slide. And as I said, it was one of the
25 first books on broadband networks. What were these

1 broadband networks?

2 The world had advanced to the point where
3 telecommunications was more than just plain old telephone
4 service, and we were now considering how to improve the
5 network or change the network so that it would support all
6 forms of telecommunications, various combinations of, as it
7 says here, data, image, full-motion video, along with
8 voice. For some reason, I can't get my finger to work.

9 Well, voice, data, image, full-motion video.

10 And one of the problems that arises when you try
11 to take all of these different traffic types or have them
12 provide the service quality, different types of
13 telecommunications, you're going to demand.

14 So my book was focused primarily on these very
15 topics. These topics are at the core of what we've been
16 discussing here over the past several days. And as I
17 stated on the last line, these were hallmarks of what were
18 then emerging broadband networks, broadband meaning
19 multimedia.

20 We're going to capture all the traffic, not just
21 the plain old telephony.

22 Q. So, Dr. Acampora, is it -- is it the case that your
23 book discussed how to combine voice, image, and video into
24 one data pipe with guaranteed service in 1994?

25 A. I wouldn't say one data pipe. I would say half of --

1 the intent was to carry these different types of traffic
2 you just mentioned, all in packet format, by the way,
3 through the network with guaranteed quality of service,
4 each -- each different traffic type.

5 Q. What types of networks, in terms of the data units,
6 were -- was described in your book?

7 A. This is -- this is -- this book is -- oh, I did
8 describe circuit switch networks, plain old telephone
9 networks. That was just the backdrop.

10 The nature of the network that was being described
11 in this book throughout is a packet switch network. It
12 carried packets, a packet being a bunch of data with 0s and
13 1s, understandable by computers.

14 A portion of that packet is called a payload.
15 That's the information the user wants to communicate. A
16 portion of that packet is called a header. That's the
17 information. The information has been tagged on to the
18 packet in order so that it could process the packet as it's
19 finding its way through the network, determining what the
20 service quality needs are, determining where it needs to
21 go, determining where it came from.

22 It's all carried within the header of the packet
23 into two parts. Header and payload make it a data packet.

24 Q. Dr. Acampora, I believe earlier -- I believe yesterday
25 Dr. Williams included in his presentation of -- an analogy

1 of a packet to something like a box --

2 A. Yes.

3 Q. -- that you'd put an address on and a toy inside.

4 Do you remember that?

5 A. I remember that, yes.

6 Q. Is that a good analogy for the concept of a packet?

7 A. A very good analogy.

8 Q. So turning back to your publications, did you have
9 other works you had in the 1990s, besides this book, that
10 described cellular concepts and quality of service?

11 A. I do. Many of my publications will focus on wireless
12 communications, different aspects of wireless
13 communications, including wireless networks to integrate
14 voice, data, image, and video while maintaining quality of
15 service, multimedia wireless networks.

16 MR. BECKER: Your Honor, we'd like to offer
17 Dr. Acampora as an expert in the field of wireless
18 telecommunications.

19 THE COURT: Any objection?

20 MR. BLACK: No objection, Your Honor.

21 THE COURT: Without objection, the Court will
22 recognize the witness as expert in the designated field.

23 MR. BECKER: Thank you, Your Honor.

24 THE COURT: Now, if you want to ask him his
25 ultimate conclusion, it's perfectly fine.

1 Q. (By Mr. Becker) Let's get back to that. I just want
2 to give the -- would you like to give the jury an idea
3 where you're going?

4 A. Yeah. So I was asked to -- as I said before, I was
5 asked to consider the validity of these patents in view of
6 the prior art, and I did, and I came to the conclusion
7 that -- and stated here, in my opinion, the '206 patent,
8 Claims 109, 112, 118, 140, 144, and 146, the asserted
9 claims are invalid. They're disclosed in the prior art.

10 For the '629 patent, same conclusion, except here
11 we're limited to Claims 1 and 4. Those are the only claims
12 that I considered, the asserted claims. In my opinion,
13 they're invalid.

14 And for the '517 patent, Claims 1 and 4, the two
15 asserted claims, in my opinion, they're invalid.

16 Q. Okay. Dr. Acampora, have you prepared any
17 demonstrative slides to discuss some background concepts
18 that are relevant to your opinions?

19 A. I have. I would like to say that I will click through
20 them, but the -- the wireless mouse isn't working.

21 Q. Sure. And I know the jury's heard a lot this week.
22 You've been here. Could you provide a brief overview of
23 what the jury is looking at here and maybe in the form of
24 an analogy?

25 A. Yeah.

1 Okay. So what's here is my simple rendition of a
2 broadband network. This network contains four packet
3 switches -- those are the blue cylinders that you see in
4 the middle -- and a bunch of links. These are
5 communication links connecting the switches. Those
6 communication links carry data packets between the switches
7 where the switches will look at the header and make some
8 decisions and advance the packet toward the destination.

9 So surrounding the network -- the network is
10 what's inside of the green cloud -- surrounding the network
11 are the different types of data devices that would use the
12 service of the network.

13 Different types of computers, workstations,
14 digital telephones are capable of communicating in packet
15 format, those are the types of devices that connect to the
16 network -- or the network is inside of the green cloud.

17 THE COURT: Counsel approach the bench, please.
18 (Bench conference.)

19 THE COURT: Does he have some electronic mouse
20 that is not functioning? Do you have a replacement?
21 There's not a mouse on the -- there's not a mouse on the
22 counsel -- on the witness stand. I'm really not sure what
23 he's talking about.

24 MR. BLACK: There's a wireless clicker.

25 MR. BECKER: I think he's expecting to be able to

1 click it himself.

2 THE COURT: If he's got something he anticipated
3 using to assist his testimony and it's not functioning, I'm
4 happy to afford you an opportunity to replace it. That's
5 what I'm asking about.

6 MR. BLACK: Your Honor, I think it's -- the issue
7 is the wireless is not good enough to get that far away.

8 MR. BECKER: We need better QoS, Your Honor.

9 THE COURT: All right. So there's not --

10 MR. BLACK: Maybe if you take it, it'll be closer.
11 I didn't have any problems when I --

12 MR. BECKER: I'm sorry.

13 MR. BLACK: I've used -- I used it from the
14 podium, and if you -- you're closer, you might be able to
15 get your guy. He's got one he was trying to use. Oh, oh,
16 you think --

17 THE COURT: Let you advance the slides.

18 MR. BECKER: I can try to do that or --

19 THE COURT: Just whatever will help. I'm just
20 trying to be helpful with the witness, that's all.

21 MR. BECKER: Okay.

22 THE COURT: If you need to make a change, you have
23 latitude to do that.

24 MR. BECKER: Okay. Thank you, sir.

25 MR. BLACK: Thank you, Your Honor.

1 (Bench conference concluded.)

2 Q. (By Mr. Becker) Dr. Acampora, is there a common
3 everyday analogy that you could use to help explain what's
4 going on with the packets in this network?

5 A. I can. So as packets flow into the network, the
6 routers deliver them to the destination. What could
7 happen -- could we have the next slide?

8 What could happen is packets start flowing in real
9 quickly, and I tried to demonstrate -- this is sort of like
10 an unhappy network sort of bursting at the seams. That
11 analogy. In fact, it's an analogy that I often use with --
12 when I was teaching telecommunications, data networks,
13 wireless or wireline. The analogy is to the U.S. mail.

14 A packet is like an envelope. You put some
15 contents inside. That's the payload. You put an address
16 on it, a return address, as well, affix postage. You drop
17 it into the mailbox.

18 In -- maybe in late spring, perhaps, there's not
19 too much mail. The mail will go through kind of quickly.
20 The post office will look at the address, the header of the
21 packet, and it will determine where it needs to go, and
22 then it will forward the packet by plane or by truck or
23 however it does, and eventually the post person drops it
24 into your mailbox.

25 At Christmas time, not so good. Now, there's a lot

1 of mail going through the postal service. Things slow
2 down. Some -- you may have experienced it. You wind up
3 getting season greeting -- you get greeting cards after the
4 holiday. The net -- the network -- or in this case, the
5 postal network just couldn't keep up with the demand.
6 There was no quality of service guaranteed.

7 Q. Is this problem of network congestion described in your
8 '94 textbook?

9 A. It's described and several solutions to this problem
10 that were known at the time are also described in great
11 detail.

12 Q. Could you give us one example that's in your book that
13 is relevant to the concepts here and explain that?

14 A. Sure. So what I -- what I speak about at great length
15 is a concept known as admission control.

16 What's done here is before a new application flow
17 can be set up -- suppose I want to get mail from my email
18 server, so I might want to send a request to my server.
19 The server responds with my email. I read some mail. I
20 compose mail. I send mail. Maybe I receive some new mail.
21 Before I can do any of this process, I would have to go
22 through a process called admission control.

23 What the network can do at the time that the
24 session is being considered is make a determination. If
25 I accept the new expected packet flow caused by this new

1 application, what will it do to the quality of service that
2 I've already guaranteed to existing application flows?

3 So they all went through the same process, and
4 they will make some guarantees.

5 The objective here is to give the network an
6 opportunity to do one of two things. A, block the new
7 request for a connection. It might do that if it can't
8 guarantee service quality to the existing connections
9 because now traffic will begin to go up to too high a
10 level, or it might admit the new connection but with the
11 understanding you're basically overflow traffic.

12 You're going to get lowest possible priority.
13 I'm going to preserve priority that's guaranteed to the
14 established connections. I'll serve you if the network
15 happens to be unbusy when you present your packets.
16 Otherwise, your packet is going to be delayed or may not
17 even be delivered at all.

18 So that's a primary mechanism, just limit the
19 volume of traffic presented to the network so that the
20 network does not become overclogged.

21 Q. Was there another concept in your book discussed?

22 A. There is.

23 Q. Do you have a slide prepared to show that?

24 A. Yeah. And this is a fairly straightforward process.
25 I have got a slide. And this is known as classifying and

1 scheduling.

2 So in this situation, packets come in. In this
3 case, I've shown three different types of traffic. The
4 header of the packet would basically identify in some form
5 or other the nature of the traffic, either the quality of
6 service needed or might say it's a web application, but
7 there'd be some indication in the header telling the
8 network how the packets should be classified.

9 And I have -- I show three data queues. These are
10 just memory locations that store data packets. And on the
11 way in -- it went by kind of quickly, but on the way in,
12 the packets were classified into different -- different
13 classes of queues.

14 Then the scheduler -- now, the output side of the
15 queue, the scheduler, the bottom of the drawing, that's now
16 going to -- can you advance the slide.

17 So the scheduler just picked the voice queue
18 first. It has the highest priority. We've heard this a
19 few times. The voice needs to be delivered in real-time so
20 that -- the scheduler is going to take that queue, and then
21 it's going to take -- begin taking voice packets out until
22 the queue is empty. And then it will go to the next
23 highest priority queue. I don't guess that's in the
24 animation. And it will begin serving that.

25 So the scheduler is then going to pick the queue

1 that it's going to serve first and then it's going to empty
2 that queue out. And there are different ways the queues
3 can be emptied out. Then the scheduler would go to the
4 next queue and begin to empty that out.

5 So we've classified on the input side. We've
6 scheduled on the output side. And this was, again,
7 well-known. And I -- I describe in my book, but it didn't
8 take much to describe it.

9 Q. Is this concept of classifying and scheduling -- can
10 you explain -- does that relate to your post office
11 analogy?

12 A. Yeah. We can do an analogy of the post office once
13 again.

14 So the post office -- I don't know if it still
15 does, but one time it had different grades of service. It
16 was -- was it Class A mail or priority mail? Class A mail,
17 Class B mail. It was different types of mail, and what --
18 and you paid accordingly. And what the post office did
19 would give priority, based upon how much you paid and what
20 class of mail you fell into.

21 So when you dropped your mail off at the post
22 office, when the post person picks it up, the post office
23 is going to classify that based upon what type of mail it
24 is. And then it will be -- it will be delivered based upon
25 that, as well. Third class mail gets there last.

1 Q. Thank you. Before we get into the substance of your
2 opinions, I wanted to ask you just a few preliminary
3 questions. Are you being paid for your work on this case?

4 A. I am.

5 Q. And we've heard the rates talked about a lot today with
6 different experts. What is your standard hourly rate?

7 A. \$725.00 an hour.

8 Q. Is it customary for experts like yourself and
9 Dr. Wicker and Dr. Williams to charge for their time in
10 connection with matters like this?

11 A. Yes, it is.

12 Q. Does your compensation or what you're being paid have
13 anything to do with the outcome of this case?

14 A. No.

15 Q. About how much time would you say you've spent on this
16 case?

17 A. I just computed that earlier today. And it looks like
18 it's somewhere -- ballpark figure, somewhere between 250
19 and 300 hours.

20 Q. Okay. I'd like to ask you some questions on the topic
21 of invalidity and to help the jurors understand the context
22 of your opinions.

23 You recall when Judge Gilstrap instructed the jury
24 that the fact that the Patent Office grants a patent does
25 not necessarily mean that any invention claimed in the

1 patent, in fact, deserves the protection of a patent.

2 Do you recall that?

3 A. I was here when Judge Gilstrap provided those
4 instructions to the jury, yes.

5 Q. Do you have an understanding of why that is?

6 A. Yeah. So as I heard Judge Gilstrap explain, the Patent
7 Office can make a mistake. It's not infallible. So in
8 this particular matter, it's up to the jury to decide
9 whether the patent is valid or not valid.

10 I basically did the same thing. I looked at the
11 patents. I compared it against the prior art, and I made a
12 determination as to whether the patentholder was entitled
13 to that patent. Was it that patentholder's property or
14 not?

15 Q. And you did that analysis independently of the work
16 the PTO did in deciding to issue the patent in the
17 first place?

18 A. That's correct.

19 Q. You heard Dr. Chrissan testify this week about how he
20 thinks maybe some Ericsson patents could be invalid.

21 Do you recall that?

22 A. Yes, I do.

23 Q. And he said -- I think he also acknowledged that the
24 Patent Office could have made a mistake with respect to
25 those Ericsson patents.

1 Do you recall that?

2 A. I remember that, yes.

3 Q. And that's -- that's normal, right? People make
4 mistakes?

5 A. Yeah. And, again, I'm not going to cast judgment on
6 the work of the Patent Office, but mistakes could be made,
7 or it might even be a mistake that the Patent Office might
8 not have had access to the same information that somebody
9 else might have access to.

10 There are a bunch of -- there are a number of
11 reasons, I can imagine, why the Patent Office would have
12 issued a patent that is later found to be invalid,
13 including the possibility that a mistake was made.

14 Q. Right. And nobody is perfect, right?

15 A. Nobody is perfect.

16 Q. I think you mentioned the concept of anticipation when
17 you first introduced the concept of invalidity. Can you
18 explain what that concept means in the context of the
19 analysis that you did?

20 A. Okay. I found it somewhat a curious legal word, and
21 I was provided with a great list of legal guidelines before
22 I began my -- my undertaking.

23 The word anticipation, this does not mean that
24 somebody somehow guesses in advance that somebody else
25 would file a patent.

1 No. It's basically that somebody else did it
2 first. There's one printed publication or a patent or a
3 system that discloses the limitations of an asserted claim.

4 And in that case, the lawyers say that claim was
5 anticipated. I say it was not new.

6 Q. And just to be clear, you're saying that it's
7 anticipated if it's all in one document? Is that -- did I
8 hear you right?

9 A. That's correct.

10 Q. Is it a -- is it possible that a concept might still
11 not be valid even if it's not all in one document?

12 A. Yes. That's what I alluded to earlier. That's the
13 obviousness criteria.

14 Q. And can you explain that again, please --

15 A. Yeah.

16 Q. -- just briefly?

17 A. So even though it may not be all in one place, a person
18 skilled in the art, somebody who's skilled in this field,
19 with the proper training, the proper education, the proper
20 experience with regard to the subject matter of a patent
21 who would be familiar all of the surrounding literature,
22 the papers, the publications, the systems, would be able to
23 say this publication and this publication, it would be
24 obvious to use the teachings of one inside of the other.

25 It would be natural to combine them. To be a

1 suggestion to combine, one might elaborate further in terms
2 of what a particular aspect of the -- of the paper is, but
3 it would be obvious to that person that between the two of
4 them, all of the limitations are, in fact, disclosed, and,
5 therefore, the patent is not new -- it's not -- it was
6 obvious in view of the prior art.

7 THE COURT: Dr. Acampora, would you try to slow
8 down with your presentation a little bit?

9 THE WITNESS: Yes. Thank you, Your Honor. I
10 will.

11 THE COURT: And -- and while I've interrupted
12 everything, "yeah," is probably not the best answer in a
13 United States District Court. If you could say yes, I
14 would prefer that, just as a personal prerogative.

15 THE WITNESS: I'll try my best, Your Honor.

16 THE COURT: Thank you very much.

17 Let's go forward.

18 Q. (By Mr. Becker) So a patent can be obvious even if the
19 concepts are not all in the same document?

20 A. That's correct.

21 Q. Why is that again?

22 A. Because to a person of skill in the art, looking at the
23 literature, it would be obvious that all of the limitations
24 are taught and not just randomly taught but taught in some
25 sort of cohesive fashion where it would be obvious to a

1 person of skill that when I combine these two elements or
2 these two publications, all of the elements of the claims
3 are, in fact, present, in the open literature.

4 The patentholder is not entitled to a patent. It
5 may be owned by the public, it may be owned by somebody
6 else, but not owned by the patentholder.

7 Q. So for the purposes of these asserted patents, do you
8 have an opinion about who that person of ordinary skill
9 would be?

10 A. Yes. I was asked to form such an opinion, and I did.

11 Q. Could you please tell the jury what -- sorry -- what
12 skill level that person would have?

13 A. Okay. In my opinion, that person would have a
14 bachelor's degree in electrical or computer engineering or
15 a similar field and several years of experience, three to
16 five years of experience, on-the-job experience in the
17 field, or more education, a master's degree in this -- in
18 this case, and to offset the greater education or perhaps
19 less experience on the job would be needed.

20 Q. Thank you.

21 You've -- you've heard some instructions this week
22 on the concept of burdens?

23 A. I have.

24 Q. And you understand the burden of showing invalidity is
25 a higher burden than showing infringement.

1 A. That's what I understand, yes.

2 Q. And what is that standard for invalidity?

3 A. So I believe the standard is known as clear and
4 convincing evidence, as opposed to the lower standard for
5 infringement, which is a preponderance of the evidence,
6 more likely than not.

7 Clear and convincing evidence means -- yeah, I've
8 seen enough evidence that I'm convinced the patent is
9 invalid. And that's a higher standard. I understand
10 there's another standard. It's beyond a reasonable doubt,
11 like in a criminal case. Is there any lingering doubt
12 whatsoever?

13 It's not that high a standard. It just has to
14 be -- the evidence has to be such that a person is
15 convinced that the patent is, in fact, invalid.

16 MR. BLACK: Your Honor, objection.

17 THE COURT: State your objection.

18 MR. BLACK: Just that the standard should come
19 from the Court.

20 THE COURT: In other words, the witness is giving
21 a legal conclusion?

22 MR. BLACK: Yes, Your Honor.

23 THE COURT: I'll sustain the objection on that
24 basis.

25 Q. (By Mr. Becker) Did you -- you applied the relevant

1 standards when forming your opinions, Dr. Acampora?

2 A. Yes, among the legal guidelines that I was -- that I
3 asked for and was provided with for the standards I should
4 apply, and those are the standards I did apply.

5 Q. All right. Thank you.

6 Dr. Acampora, you mentioned on your background
7 slide that you have over 40 patents in your name.

8 A. That's correct.

9 Q. Did I get that right?

10 A. That's correct.

11 Q. So this task of considering whether a patent is valid
12 or invalid, is that something you take lightly?

13 A. No, not at all.

14 Q. And why is that?

15 A. I wouldn't want my property taken away if, in fact, I
16 did own it. So I want to be sure -- I'm glad that the
17 standard is such that someone would have to demonstrate by
18 clear and convincing evidence that it wasn't mine to be
19 taken away. I would take that very seriously.

20 Q. Right. And if we looked on the other side of that
21 token, would it also be wrong to let somebody keep a patent
22 if that patent was, in fact, covering concepts that belong
23 to other people or to the public?

24 A. Yes. That's the flip side of the coin. If somebody is
25 claiming ownership of property that isn't that person's,

1 they shouldn't have the right to exclude.

2 The property in that case should be taken in that
3 case. Perhaps it belongs to someone else or perhaps it
4 belongs to the public.

5 MR. BLACK: Your Honor, objection. These are not
6 technical opinions that he's qualified -- I'm not sure if
7 they're legal opinions. It could be his personal opinions,
8 how the patent system ought to work, and it's irrelevant.

9 MR. BECKER: Your Honor, I believe Dr. Chrissan
10 was asked the same question in the direct of his
11 examination. So I thought it was fair to ask Dr. Acampora
12 the same question.

13 THE COURT: Well, I'll overrule the objection,
14 although I want to make it clear that the Court will be the
15 sole source of instruction to the jury on what the law is
16 and what the law to be applied in this case will be, and I
17 think both sides understand that.

18 All right. Let's go forward.

19 MR. BECKER: Thank you, Your Honor.

20 Q. (By Mr. Becker) Dr. Acampora, which patent would you
21 like to begin your discussion with?

22 A. The '206 patent, please.

23 Q. Okay. And I -- the jury's heard a lot about the '206
24 patent this week, but just to reorient them to -- to
25 this -- this patent, could you give them a brief overview

1 of the claim, the first claim in this patent?

2 A. Sure. Claim 1-0 -- Claim 109 includes two steps.

3 It's a method claim and includes two steps:

4 Classifying a plurality of packets and scheduling said
5 plurality of packets. And then there was some criteria
6 concerning classification and scheduling, which I'll talk
7 about.

8 Q. Okay. And I want to make -- I want to ask you about
9 one element here. It says: Communication in at least one
10 of an upstream direction and a downstream direction.

11 Does that mean you have to show both of those or
12 is one enough?

13 A. Okay. So in the second limitation -- I believe that's
14 what you're referring to -- it does state at least one of
15 an upstream direction and a downstream direction. So if
16 the prior art discloses one of these or both of these, then
17 that portion of the limitation will be found. It's not
18 necessary for both the uplink and the downlink to be found,
19 at least one of them. And that would mean one or the other
20 or both. But you don't have to have both. That's my
21 understanding of that language.

22 Q. Thank you. Dr. Acampora, in 1998, when this patent was
23 filed, was there anything new or not obvious about the
24 concept -- the general concept of classifying and
25 scheduling packets?

1 A. In my opinion, there was nothing new in this claim that
2 wasn't in the prior art. In fact, fairly well-known.

3 Q. And is -- is the concept in this claim, is that a --
4 was that new in 4G?

5 A. I'm sorry, one more time, please?

6 Q. Was that new in 4G?

7 A. No, no, this -- this is -- this well precedes 4G.

8 Q. Does it precede 3G?

9 A. It even precedes 3G.

10 Q. What kind of prior art did you find these concepts in?

11 A. Publications and patents.

12 Q. What -- was there a particular generation system?

13 A. Yeah. In fact, I found these in second generation, or
14 if I might clarify, we heard earlier, second generation
15 GSM. I'm not -- it's -- it's a French acronym. I'm not
16 even sure I could pronounce what it stands for. We just
17 use it backward -- mobile for global. That was a second
18 generation standard upon which was layered what we call
19 GPRS, General Packet Radio Service.

20 GPRS is not 3G, but it was not in the original
21 version of 2G. Some people refer to it as being 2. --
22 Generation 2.5. But the concepts go back at least as far
23 as GPRS.

24 And if we excluded uplink and downlink direction
25 over wireless, then the concepts go back much further than

1 that.

2 Q. Dr. Acampora, what prior art do you rely on to show
3 that that is, indeed, the case with respect to this claim?

4 A. Next slide, please.

5 What I'm going to use is a U.S. patent I'll refer
6 to as being the Forslow patent.

7 Q. Could you give us a little bit more information about
8 the patent?

9 A. Yes. So I excerpted -- on this slide are a few of the
10 lines appearing on the cover of the patent, the U.S. Patent
11 number, the date the patent issued, the inventor, and the
12 assignee, the assignee -- the inventor being Jan Forslow,
13 the assignee being Ericsson, the same Ericsson who is one
14 of the Defendants in this matter. And the patent was filed
15 on May 29th, 1998.

16 Q. So just to be clear, this is an Ericsson patent owned
17 by the Defendant that's here today?

18 A. That's correct.

19 Q. And --

20 A. Well, it was assigned to Ericsson. I -- I would assume
21 Ericsson owns it. But maybe that's just an assumption.

22 Q. Okay. When was this patent filed?

23 A. May 29th, 1998.

24 Q. And what makes this Forslow patent prior art?

25 A. Its filing date.

1 Next slide, please.

2 So the Forslow patent was filed on May 29th, 1998.
3 The alleged priority date of the '206 patent, the date the
4 invent -- the invention date of the '206 patent is July
5 10th, 1998. So Forslow happened first.

6 Q. Those dates seem close. Does that matter?

7 A. No.

8 Q. So if someone else -- if Forslow, for example, had
9 these ideas in the '206 patent first, what does that mean?

10 A. If Forslow had these ideas first, it means that the
11 '206 patent -- and I -- I applied this analysis only to the
12 asserted claims -- the asserted claims of the '206 patent
13 are -- are invalid.

14 Q. And, Dr. Acampora, do you recall when Judge Gilstrap
15 instructed the jury and mentioned that there's a list of
16 certain prior art that the examiner has examined, and that
17 list appears on the patent?

18 A. Yes.

19 Q. Was Forslow listed on the face of this patent?

20 A. Forslow was listed on the face of this patent.

21 Q. Did that fact impact your analysis one way or the other
22 as to the invalidity of the '206 patent?

23 A. Not at all. It was just -- it appears on the face of
24 the patent, but the instructions, as I understand them, is
25 that I'm -- I'm to do an independent analysis without

1 regard to whether it was considered -- not considered by
2 the Patent Office without trying to determine the depth of
3 consideration by the Patent Office, an independent analysis
4 which is what I did. So that doesn't affect my opinion at
5 all.

6 Q. Okay. Just give a -- could you please give a brief
7 overview as to how you're going to use Forslow?

8 MR. BLACK: Your Honor, Your Honor, may I
9 approach?

10 THE COURT: Approach the bench.

11 (Bench conference.)

12 MR. BLACK: Well, I think he's stepped on the MIL
13 twice. There's nothing that can be done. I think we can
14 talk about it tomorrow morning if -- open things up a
15 little bit.

16 MR. BECKER: Your Honor, I --

17 THE COURT: Which MIL are you -- which MIL are you
18 referring to?

19 MR. BLACK: I don't remember the number. It's the
20 one about referencing the -- the.

21 MR. BECKER: The face of the patent?

22 MR. BLACK: -- the face of the patent.

23 MR. BECKER: Your Honor, my understanding was that
24 your instructions were that it could be mentioned that it
25 was on the face of the patent.

1 MR. BLACK: Could be mentioned. The trouble is
2 he -- previously he said that whether it was before the
3 Patent Office and whether they considered it or didn't
4 consider it was something that would be relevant. And now
5 he's come -- now he's offered the testimony that it's in
6 the record -- that it was in the record at the Patent
7 Office. I may need a little bit more leeway on cross
8 than --

9 THE COURT: Well --

10 MR. BLACK: -- without completely opening it.

11 THE COURT: -- this is -- this is the Court's
12 order in response to Plaintiff's Motion in Limine No. 2,
13 and there the Court said that certain prior art was not
14 before the PTO at the time the patents were issued and is
15 not in the cited references, is outside of the scope of
16 this limine order.

17 MR. BLACK: Correct. And --

18 MR. BECKER: And my understanding was that Your
19 Honor clarified that, and you were going to permit
20 Plaintiff to ask about cited art and the fact that it was
21 actually listed there. So, you know, I --

22 THE COURT: Quite honestly, Mr. Black, I would
23 assume the Plaintiff wants the fact that it was cited by --
24 to the PTO and the PTO --

25 MR. BLACK: Sorry --

1 THE COURT: -- and the PTO issued these asserted
2 patents over it.

3 MR. BLACK: Yes, Your Honor. Let me clarify.

4 THE COURT: Okay.

5 MR. BLACK: We, of course, want to talk about that
6 a lot. But they had made the objection that if we do that,
7 then they can start talking about the IPRs that are --
8 which we can't have happen. And I need to be able to say
9 given this testimony, which I think is consistent with what
10 you said before, that it was referenced by the Patent
11 Office. If there's something in the record --

12 MR. BECKER: Your Honor, I think all he said
13 was that it was cited --

14 THE COURT: I heard what he said.

15 MR. BECKER: -- and that didn't impact his
16 analysis.

17 THE COURT: I heard what he said. The fact that
18 this prior art that he's talking about now was in the cited
19 references of the '206 patent has nothing to do with the
20 PTAB or IPRs. And the fact that that's elaborated on or
21 touched on again in either the direct or the cross is not
22 going to open the door to the PTAB or the IPRs.

23 MR. BLACK: Okay. Thank you. I just wanted to
24 raise it.

25 THE COURT: All right. Let's proceed.

1 (Bench conference concluded.)

2 THE COURT: Let's proceed.

3 MR. BECKER: Thank you, Your Honor.

4 Q. (By Mr. Becker) Dr. Acampora, could you give just a
5 brief overview about how you believe Forslow invalidates
6 these claims?

7 A. I believe that Forslow both anticipates and renders
8 obvious Claims 109, 112, 115 [sic], and 146. Furthermore,
9 if --

10 Q. I'm sorry. I thought you were done.

11 A. -- if Forslow is combined with the teachings of
12 Goodman, that's a published paper by Dave Goodman, a former
13 colleague of mine at Bell Labs, then I think that the
14 combination would render Claims 140 and 144 obvious.

15 Q. And just to -- just for the record, the -- is the -- do
16 you have an understanding that the Forslow patent is DX-52?

17 A. Yes.

18 Q. Do you have an overview slide prepared to discuss the
19 overall system of Forslow?

20 A. Yeah, Figure 2. This is taken directly from the
21 Forslow patent. The only thing I added was the color. The
22 patent is in black and white. Everything else -- what you
23 see in color, the red and yellow, I added that.

24 And this is a GPRS system. We see that it's -- we
25 see the GPRS network right here. And it has base stations.

1 Those are here. And it has mobile stations. Those are
2 here. The link between the base station and mobile station
3 is the radio.

4 On the other side of the GPRS network is the IP
5 data network. That might be the Internet, or it might be
6 any other network that's using the Internet Protocol --
7 packets formatted in accordance with the Internet Protocol.

8 Q. And at a very high level, what was GPRS intended to do
9 with respect to the Internet and cellular phones?

10 A. What it was intended to do is extend data services from
11 the Internet to mobile devices so that if I'm on my laptop
12 computer, I can get my email, I can browse the web, things
13 of this type, things I would normally associate with
14 Internet, extend Internet out to the wireless user.

15 Q. Now, we've heard a lot of discussion and mention of
16 ATM prior art or the concept of ATM. Do you recall
17 those -- that --

18 A. Yes.

19 Q. -- happening this week?

20 Is Forslow an ATM system?

21 A. Forslow is not an ATM system. Forslow was an IP-based
22 system. The packets were IP packets, not ATM cells or
23 packets. ATM -- they're sometimes called cells. They're
24 often called cells. But one would know they're packets.
25 They're header and payload. They're treated like packet

1 switching. This uses the Internet Protocol. Different
2 type of packet.

3 Q. Thank you.

4 What -- what problem, if any, was Forslow directed
5 to?

6 A. So can we have the next slide, please?

7 So Forslow was concerned about, it was one thing
8 to have the GPRS infrastructure and to accept different
9 types of traffic. Now, we -- how are we going to provide
10 quality of service?

11 So Forslow actually, on the basis of GPRS, came up
12 with a scheme to classify and schedule packets for
13 individual application flows based on the flow's reserved
14 quality of service.

15 Q. And just to clarify, Dr. Acampora, this citation and
16 this quote you have here, these are not your words, are
17 they?

18 A. No. Once again, this came from Forslow. The cite is
19 at the bottom of the slide down here. The only thing I
20 added was -- was the coloring.

21 Q. So in 1990 -- in May of 1998, before Dr. Jorgensen
22 filed his patent on the '206 patent, this was what Ericsson
23 had filed in one of its patent applications; is that right?

24 A. Yes.

25 Q. These exact words?

1 A. This is from the Forslow patent, yes.

2 Q. And that's in DX-52. And what is the cite to this, if
3 the jury would like to find that?

4 A. Column 12, Lines 22 through 33, as noted at the bottom.

5 Q. Thank you.

6 Now, you heard Dr. Williams testify earlier this
7 week that he thought that Dr. Jorgensen was the first to
8 think of the idea of putting voice and data all in one
9 Internet-based solution.

10 Do you recall that general testimony?

11 A. Generally speaking, yes.

12 Q. Was Dr. Jorgensen the first to think of doing that?

13 A. No. Others had done it before him. In particular,
14 Forslow did it.

15 Q. And what does this quote say?

16 A. So here -- Forslow -- again, this is -- this is a cite
17 directly culled from the Forslow patent.

18 Forslow is thinking about multimedia sessions that
19 provide individual quality of service requirements
20 separately from voice, video, and data, all in one -- all
21 in one session but in plural screens. It'd be one screen
22 associated with each data type.

23 Q. And that's Voice over IP?

24 A. Well, in this case, when -- when Forslow speaks about
25 voice, given that GPRS is an IP network, this is Voice over

1 IP, yes.

2 Q. Let's talk about the claims. Before we get into your
3 analysis, I'd just like to orient the jury to -- or would
4 you like to orient the jury to the format you have on your
5 slide here?

6 A. Yeah. So for my entire analysis, I'll adhere to this
7 format. The claim will appear on the left side of the
8 screen, and the material that I've relied on, the evidence,
9 if you will, that I relied on from the records will appear
10 on the right side of the screen.

11 Q. Thank you.

12 What is the first step -- or sorry -- the first
13 step is: A method of scheduling packets comprising
14 classifying a plurality of packets according to end-user
15 quality of service requirements of said plurality of
16 packets.

17 Did you find that concept in Forslow?

18 A. I did.

19 Q. And is that the quote we actually just looked at?

20 A. Yeah, same -- same quote. So in order -- I'll just
21 re-read it.

22 In order to classify and schedule packets -- we'll
23 talk about the scheduling later, that's the next
24 limitation, but here Forslow was telling us: In order to
25 classify packets in an individual flow, based on the flow's

1 reserved quality of service, and then he goes on to tell us
2 how he's going to do it.

3 So it's clearly performing the step of classifying
4 a plurality of packets based upon quality of service
5 requirements of the packets.

6 Q. Thank you.

7 And do you have an illustrated example for that?

8 A. I do. This is also a drawing from the Forslow patents,
9 Figure 11. I added the color, which means I added this
10 down here. I added these lines over here. That's mine. I
11 added the color in the different queues.

12 But Forslow was teaching that inside the base
13 station -- that's this, that BSS, that's the base station
14 system -- is a box that is inspecting downstream packets.
15 These are coming from the network, and I colored them
16 differently to represent different flows and different
17 quality of service needs.

18 This box is separating the packets as they come in
19 and placing them each in a queue associated with the
20 service quality for that particular -- for that particular
21 flow.

22 So this is a blue queue -- that's quality of
23 service 4 -- all of the blue packets -- quality of service
24 blue packets coming from the network going to this lower
25 queue and so forth and so on for the three other queues.

1 Q. And BSS, what does that stand for?

2 A. Base station system.

3 Q. So is it correct that all of this was happening at the
4 base station?

5 A. Well, everything across this boundary, everything to
6 the left of this boundary is at the base station.

7 Q. And just to be clear, is this Figure 11 from DX-52?

8 A. Yes.

9 Q. Now, we -- you -- I noticed on your prior slide, you
10 didn't have end-user highlighted here. Is -- is it the
11 case -- or does Forslow disclose that concept of end-user
12 quality of service?

13 A. It does. And that's why I hadn't yet -- I hadn't yet
14 highlighted end-user in the prior slide.

15 Q. Does Forslow have that concept, too?

16 A. Yes, it does.

17 So what Forslow was relying on is a well-known
18 protocol. It was part of the -- it's part of the protocols
19 associated with the Internet. It was a reservation
20 protocol known as RSVP, and Forslow was employing this to
21 permit a mobile host -- that's the end device, the
22 end-user -- RSVP is being used to permit the mobile host or
23 end-user to request a certain quality of service for
24 transmission from the Internet user -- from an Internet
25 user at an ISP.

1 Q. Does this --

2 A. Again, I added the color of this slide, this up here.

3 It's just the same from Forslow down here.

4 Q. And the quality of service requested here, how does
5 that relate to how the base station classifies the packets,
6 if at all?

7 A. The base station is going to classify based upon the
8 quality of service requested by the mobile host. So these
9 are the end-user quality of service objectives that the
10 base station is going to use when classifying the packet.

11 Q. So, Dr. Acampora, is Claim 109, Step A, in Forslow?

12 A. It is.

13 Q. What about 109, Step B?

14 A. Well, now we get into the second limitation,
15 scheduling. Forslow was telling us: In order to -- I'm
16 using the same quote that I used earlier. In order to
17 classify and schedule. Now, we're going to speak about the
18 scheduling of the packets.

19 And he goes on to tell us that in order to
20 schedule, various queues/buffers -- queue and buffer are
21 the same thing -- are going to be employed in the base
22 station to accomplish the -- to accomplish the
23 classification -- well, to accomplish the scheduling. We
24 already spoke about the classification. Let me correct
25 myself on that.

1 Q. Thank you, Dr. Acampora.

2 Do you have any illustrated examples to show with
3 respect to this scheduling step?

4 A. I do. So looking at the bottom first -- so we already
5 classified the different packets by their quality of
6 service needs expressed by the end-user.

7 Now, Forslow's telling us that scheduling --
8 scheduling is now concerning how we take packets out of the
9 queue, how we're going to schedule them. It will turn out
10 to be a three-step process. I'll start down here first,
11 and this is similar to what I described earlier.

12 So prioritization of the packet scheduling
13 mechanism between quality of service classes is also
14 preferably controlled by the base station.

15 The first step: Pick the queue with the highest
16 priority.

17 Second step: Serve the packets that are in that
18 queue, schedule them for transmission on what's called the
19 first-in-first-out basis. That's the scheduling algorithm
20 that's used, first-in-first-out.

21 That simply means, if you're the oldest packet,
22 you get served first. It's header -- it's also known as
23 header fly serving. Whoever gets there first gets served.
24 Somebody else go to the head of the line, then gets served,
25 first-in-first-out.

1 Q. And for clarity, is this process happening at the base
2 station?

3 A. Yes. This is all being performed at the base station.

4 Q. And is the base station -- is this scheduling being
5 performed for communication in at least a downstream
6 direction over a shared wireless medium?

7 A. Yes, it is. So the third step with scheduling is
8 actually assigning radio resources. That's the highlighted
9 area down here.

10 Again, this drawing was taken from Forslow's
11 Figure 12. I -- I took out portions of Figure 12 that
12 weren't needed for my analysis, but the RLC, R -- the R in
13 RLC is stands for radio. It's a radio link control layer.
14 This is the layer in the base station that's actually
15 responsible for assigning radio resources existing between
16 the base station and the mobile station to the -- to the
17 individual packets.

18 So scheduling consists of ping-pong the highest
19 priority queue, taking the oldest packet in that queue, and
20 assigning it to the radio channel -- assigning radio
21 resources to transfer that packet.

22 Q. So does Forslow disclose each of the limitations in
23 Claim 109?

24 A. Yeah. So this is -- the -- the assignment to the radio
25 is in a downlink direction. We only need to show one of

1 those -- or I need to show one of those. And Limitation B
2 is present, and Claim 109, in my opinion, is invalid.

3 Q. What is the next claim you'd like to discuss?

4 A. Next slide, please. Claim 112.

5 Q. What does 112 add to Claim 109?

6 A. The additional limitation of -- of at least the
7 classifying -- at least one of the classifying step and the
8 scheduling step. So one or the other or both is performed
9 by a packet scheduler wherein the packet scheduler is
10 executed on at least one of the base station or the
11 customer premises equipment. So it's either at the base
12 station or it's at the customer premises equipment.

13 Q. So does the base station of Forslow have a packet
14 scheduler that meets this limitation?

15 A. Yes, it does. It's the base station or rather the
16 equipment within the base station that accomplishes the
17 scheduling steps that I just described. So that -- that's
18 the scheduler. It's at the base station.

19 And so the scheduling step, all we needed was one,
20 is performed by a packet scheduler at the base station. So
21 this limitation is met.

22 Q. What's your conclusion regarding Claim 112?

23 A. Claim 112 is invalid.

24 Q. What's the next claim that you're going to be
25 discussing?

1 A. Claim 118.

2 Q. What does Claim 118 add?

3 A. Claim 118 refers back to Claim 9, and it requires that
4 the -- the add -- the additional step must perform the
5 communicating the end-user quality of service requirements
6 between a station and an access point.

7 Q. Does that happen in Forslow?

8 A. It does. This is Figure 10A from Forslow. I added the
9 coloring. I didn't add the line, the red line. I just
10 colored it red. And what it's clearly showing is that the
11 mobile host -- that's the end-user -- is sending the RSVP
12 through the base station. So it got to the base station
13 and is then sent further into the GPRS network. And this
14 allows the mobile host, through the mechanism, whereby the
15 mobile host requests a certain quality of service.

16 I explained this RSVP usage a little bit earlier,
17 and that allows the mobile host to request. And here it's
18 shown diagrammatically. It's in an illustration.

19 Q. And, Dr. Acampora, the access point here, where's that
20 in the figure?

21 A. The access point is the base station. So --

22 Q. Thank you.

23 A. -- within the field, it's very often substitutable.
24 Access point is the same as a base station. Access point
25 is also used in WiFi, but in -- in the context of cellular,

1 an access point is a base station.

2 Q. Thank you, Dr. Acampora. Is -- what is your conclusion
3 regarding Claim 118?

4 A. Claim 118 is invalid.

5 Q. Thank you. What is the next claim that you're going to
6 discuss?

7 A. Let's talk about Claim 146.

8 Q. Okay. What does Claim 146 add to the equation?

9 A. So the scheduling step comprises allocating shared
10 wireless bandwidth in an oversubscribed environment without
11 subsequent degradation of the high priority Voice over IP
12 and video applications.

13 Q. At a high level, can you provide just a very brief
14 overview of what that means?

15 A. Yeah. So I actually referenced it a little bit earlier
16 when I spoke about admission control. That's not what's
17 taught in Forslow. But what I mentioned is that in some
18 types of data networks, there's an admission control
19 process which will tell a new flow, I'm sorry, I can't
20 accept you with quality of service guarantee. You're free
21 to use the network, but you're going to get best effort
22 service. You get basically whatever is left over. That
23 would be an example of oversubscription.

24 Q. Is this concept in Forslow?

25 A. It is.

1 Q. First of all, is Voice over -- high property Voice over
2 IP and video, is that in Forslow?

3 A. Yes, it is. So just looking at the highlighted section
4 of the excerpt, adhering to individual quality of service
5 requirements of voice and video. Voice, as I already said,
6 would be Voice over IP. GPRS network, which Forslow was
7 using, is an IP network.

8 Q. Thank you.

9 A. And image is going to be guaranteed, a predictable
10 delay. So telephony is provided a guaranteed service.
11 Video has got a predicted delay.

12 Q. Thank you. What about the concept of oversubscription?

13 A. Well, then another passage tells us that the estimates
14 may be used to evaluate if new reservations may be
15 accepted. That was an admission process that I was
16 describing before.

17 So the RSVP can sort of be used as a -- a request
18 for admission with guaranteed quality of service. And what
19 it's telling us is that the new reservations may be
20 accepted without affecting existing connections.

21 So it's really telling us two things. Maybe I can
22 take a reservation with no affect on existing reservations,
23 and I can guarantee service quality to new reservation, or
24 maybe accepted -- maybe it won't be accepted. It will just
25 be told, well, you can flow, but I'm not giving you any

1 quality of service. That's the oversubscription. That's
2 the oversubscription state.

3 So the voice and video will still get their
4 service quality needs met but not this new connection. The
5 new sub -- the new connection is an oversubscription.

6 Q. Thank you, Dr. Acampora. What is your conclusion
7 regarding Claim 146?

8 A. Claim 146 is invalid.

9 Q. What is the next claim you'd like to discuss?

10 A. Claim 140.

11 Q. Okay. What is Claim 140 -- I guess if you could start
12 with just the first two limitations. Can you explain those
13 at a high level?

14 A. Okay. So this is adding to Claim 9, and there has to
15 be some coordination by the access point. And it has to be
16 controlling by the access point.

17 So we're talking about coordinating -- controlling
18 access to the wireless resource by one or more network
19 stations. We'll get into the other two limitations in a
20 minute.

21 Q. Thank you. Are Steps A and B in Forslow?

22 A. Yes. That was -- that's performed by the radio link
23 control/MAC sublayer. We spoke about that earlier, the RLS
24 radio.

25 So this is the process followed at the base

1 station to arbitrate who gets to use the shared physical
2 radio medium. That's the responsibility of the RLC. The
3 RLC is coordinating and controlling access to the radio.

4 Q. What about the next two steps -- well, first of all,
5 are Steps A and B in Forslow?

6 A. They are.

7 Q. And what about the next two steps?

8 A. Well, let's look at the next slide.

9 So next slide, receiving reservation request for
10 one or more of the wireless stations at the base station
11 and sending grants from the base station back to the
12 wireless network station.

13 So the -- the end-user is going to make a request
14 for radio resources, and the base station is going to
15 provide a grant telling the end station, here's your
16 turn -- here's how I want you to send. The base station is
17 in control.

18 Q. Does Forslow have the concept of uplink transmissions?

19 A. Well, we saw the RSVP flow in the uplink direction, but
20 I'm -- I'm actually going to rely on something more
21 fundamental than that.

22 Q. Okay. Is this one of those situations where it's not
23 all in one document?

24 A. Questionable. Forslow mentions GPRS, and a person of
25 skill would understand what GPRS entails.

1 Q. Did you --

2 A. But there's another paper that provides the details
3 that aren't in Forslow.

4 Q. Does GPRS have these details?

5 A. The GPRS standard has these details. The Goodman paper
6 basically summarized certain aspects of GPRS.

7 Q. And what is the Goodman paper at a high level?

8 A. It was a paper published by the IEEE titled General
9 Packet Radio Service and GSM. So what Dave Goodman did
10 here is take this great big standard, took off all of the
11 details about how to form packets and what bit corresponds
12 to what and basically provided the operating principles of
13 GPRS.

14 Q. So is the concept of receiving reservation requests and
15 sending grants in response to those requests in GPRS as
16 disclosed by Goodman?

17 A. Yes.

18 Q. So why are you relying on Goodman instead of the GPRS
19 standard itself?

20 A. It's all -- in terms of finding the limitation, it's in
21 Goodman, and Goodman is providing a summary of the
22 principles upon which GPRS operates, sparing the reader the
23 details. We don't need to know, like I said, what bit goes
24 in what position in what subframe of a header, anything
25 like that. Those are details.

1 Goodman is giving us basic principles of
2 operation, more specificity of what's in Forslow. Forslow
3 simply says GPRS. So Dave is -- Dr. Goodman is providing
4 this one further level of detail.

5 Q. And is Goodman consistent with what's described in
6 GPRS?

7 A. Completely.

8 Q. Okay. Is -- and Goodman, is that a prior art article?

9 A. Yes, it is. It was published in May of '97, which is
10 before the invention date of the '206, which was July of
11 1998.

12 Q. What -- what evidence from Goodman are you going to
13 rely on to show that this limitation is met?

14 A. Next slide, please.

15 So this is a drawing taken from Goodman. It's
16 Figure 9 from Goodman. Here's the Goodman reference down
17 here. It's DX-86.

18 THE COURT: Dr. Acampora, again, try to slow down,
19 if you can, please.

20 THE WITNESS: Yes, Your Honor. Thank you.

21 THE COURT: Please continue.

22 A. So this drawing is showing some flows in a process
23 which ultimately results in the transmission of user data,
24 but I'm not relying on that. What I'm relying on are these
25 first two steps.

1 The mobile station sends a packet channel request
2 to the base station. The base station responds with the
3 assignment of what -- of the position -- it assigns to the
4 mobile station an access -- packet access control channel.
5 This is going to be the grant.

6 Request is the first step. Grant, I'm granting
7 you permission to use the packet access control channel.

8 Q. (By Mr. Becker) You talked about Forslow describes
9 sending data in the uplink to the base station?

10 A. Yes.

11 Q. Would this -- would the steps shown in this figure be
12 required for that to happen in a system like Forslow?

13 A. I'm not sure I understand the question. Can you ask
14 that again, please?

15 Q. In order to send data to the base station, packet data,
16 would the mobile stations and the base stations in Forslow
17 need to follow a procedure like this?

18 A. Yes, they would. The base station is in complete
19 control of access to the radio medium.

20 If the users could -- if remote users could simply
21 send uplink anytime they want, if two send packets at the
22 same time, they collide. The information content is
23 destroyed. The radio interference would make the contents
24 unreadable.

25 The only exception to that is exactly that case.

1 To make the initial request, what's being used is a random
2 access channel. So before you can do anything in the
3 uplink direction, without control of the base station, you
4 have to make a request on the uplink random access channel.
5 That's basically saying, I want to start a procedure.

6 In response to that, the base station is now going
7 to assign uplink resources and the rest of what the base
8 station -- of what the user is asking for can now be
9 presented. Those are the subsequent steps.

10 But I'm not relying on those as far as Elements
11 (c) and (d) are concerned.

12 Q. So in terms of these specific details of GPRS, would it
13 be obvious or not obvious to use these details in a system
14 like Forslow?

15 A. It would be obvious to use these because it's -- like I
16 said, it's telling us exactly how GPRS operates, which is
17 the network upon which the Forslow patent is based, GPRS.

18 Q. So bottom line is, as the -- what's your opinion about
19 Claim 140?

20 A. Claim 140 is invalid.

21 Q. Are there any more claims to talk about with respect to
22 the '206?

23 A. I believe there's one more.

24 Q. This is the --

25 A. Claim 144.

1 Q. This is the last one?

2 A. It is.

3 Q. What's your opinion regarding Claim 144?

4 A. I believe it is also obvious in light of the
5 Forslow/Goodman combination.

6 Q. And what evidence do you rely on to show that?

7 Sorry -- before we get to that, what's -- can you
8 just provide an overview of what the Claim 144 is -- the
9 concept is?

10 A. Yeah. So here, the coordinating step comprises
11 ensuring high priority packets are provided appropriate
12 bandwidth needed to -- needed by said high priority
13 packets.

14 And I'll rely on, once again, the same passage
15 that I relied on earlier. Goodman is telling us -- I'm
16 sorry -- Forslow is telling us that the Forslow invention
17 will adhere to individual quality of service requirements
18 of voice and video, for example, realtime application, like
19 telephony, guaranteed service, image, video, and these
20 predictable delays. These are the high priority traffic
21 types.

22 Q. Thank you, Dr. Acampora.

23 What's your conclusion regarding Claim 144?

24 A. It's invalid.

25 Q. Could you please provide a summary of your opinions

1 with respect to the '206 patent?

2 A. Yeah. I'll make it brief. I believe the Forslow
3 patent anticipates and renders obvious the asserted claims
4 of the '206 patent. Forslow, combined with Goodman, render
5 obvious Claims 140 -- Claims -- Claims 140 and 144. Let me
6 restate what I said before.

7 Forslow by itself anticipates and renders obvious
8 Claims 109, 112, 118, and 146. The other two asserted
9 claims, Goodman, combined with Forslow, would render those
10 obvious.

11 Q. Thank you.

12 Any doubt in your mind that one way or the other,
13 the '206 patent is invalid?

14 A. The '206 patent, the asserted claims -- I didn't look
15 at the other claims -- the asserted claims were invalid.

16 Q. Thank you.

17 What patent do we discuss next?

18 A. Next slide, please.

19 Let's talk about the '629 patent.

20 Q. Okay. And we've talked about this a lot. Just at a
21 high level, what is this concept? What is the concept in
22 this patent?

23 A. Okay. So the jury's heard about this several times
24 this week. This -- Claim 1 involves a reservation
25 algorithm, which reserves a first slot in a future frame

1 and reserves a second slot in a later frame, a
2 subsequent -- subsequent in time, subsequent to the first
3 frame, which is at some future point in time, and all this
4 reservation must be done, so the second data packet is
5 placed in the second slot in an isochronous manner.

6 Q. Okay. What priority are you relying on? Well, sorry.
7 I asked the wrong question.

8 A. Okay. So this is a simple --

9 Q. Let me ask the question.

10 Do you have a slide prepared to remind the
11 jurors -- I think you can go through this briefly,
12 Dr. Acampora, because the jurors have heard it already, but
13 just very briefly to remind them what this patent is about?

14 A. Yes. So let's consider a voice source that is
15 generating a data packet periodically.

16 So the frame -- the claim is basically saying let
17 there be frames. Frame 0, 1, and 2 in this example. And
18 what I want to do is have a voice packet, in this example,
19 reserve Slot 7 in Frame 0 or access Slot 7 in Frame 0.

20 Once that slot is accessed, it will be tabbed and
21 reserved in future frames.

22 That's basically what this -- and the claim will
23 also require that a data packet be placed here, and the
24 second data packet be placed here, here and here.

25 Q. And just to be clear, are you marking on Slots 7 in

1 each of Frames 1 and 2 in this slide?

2 A. Yeah. My finger is not a very good stylus.

3 Q. Do you have -- what prior art do you rely on for your
4 opinions for this -- with respect to the '629 patent?

5 A. Next slide, please.

6 I'm going to rely here on another U.S. patent,
7 which I'll refer to as being the Turina patent. The jury
8 has already heard about the Turina patent.

9 Q. And the Turina patent, that's the same one that
10 Dr. Chrissan mentioned in his testimony and Dr. Wicker
11 mentioned in his testimony?

12 A. Same patent.

13 Q. And this is an Ericsson patent?

14 A. This is an Ericsson patent. This is what's excerpted
15 from the front of the patent. We see it's a U.S. patent
16 granted in 2000. We see the name of the inventor, and the
17 assignee is Eric -- once again, it's Ericsson, and it was
18 filed November 27th, 1996.

19 Q. And what makes this patent prior art?

20 A. Next slide.

21 So it was applied for in 1996. Priority date of
22 the '629 patent is 1999. Turina happened first.

23 Q. Okay. What are your opinions with respect to the '629
24 patent?

25 A. I believe that the Turina will patent will render

1 Claims 1 and 6 [sic] obvious.

2 Q. And do you have any slides prepared to show the jury
3 what Turina was about at a higher level?

4 A. I do. So this is just sort of the lay of the land. We
5 see the base station. We see a mobile phone. In fact, we
6 see a couple of mobile phones and a couple of base
7 stations.

8 This is also a GPRS patent. Not that -- that
9 Turina invented GPRS. Turina is going to use GPRS.

10 Q. Was this an IP-based network?

11 A. Yes. Once again, it's GPRS. And GPRS is an IP-based
12 network.

13 Q. And we heard the concept of a VIP mobile -- a VIP
14 mobile?

15 A. We did.

16 Q. Is -- is it -- can the system of Turina support more
17 than one VIP mobile for base stations?

18 A. Yes, it can. There's no requirement the number of VIP
19 mobiles be limited to one.

20 Q. Well, would it -- would it make any sense for one --
21 for the base station to only allow one mobile to be VIP per
22 base station?

23 A. That would make no sense at all.

24 Q. Why is that?

25 A. Well, as an example, so only one is allowed for base

1 station. And suppose both of the mobile phones shown in
2 this drawing happened to be VIP stations. Well, that would
3 be fine. It would be one associated with each base
4 station, but these are mobile phones.

5 What happens when somebody gets in a car and
6 drives to the region served by the other base station?
7 Now, all of a sudden there are two VIP mobiles in one base
8 station. Does one of them suddenly get kicked out? It
9 would make no sense.

10 Q. Thank you. And which figure are you going to rely on
11 for the majority of your discussion?

12 A. I believe it's Figure 3.

13 Next slide.

14 Q. And Dr. Wicker already explained this, so maybe you can
15 give an abbreviated overview to remind the jury what this
16 figure is about?

17 A. Yeah. So, once again, I added the coloring.
18 Otherwise, this is directly from Turina. And Turina is
19 describing TDMA frames, Time Division Multiple Access,
20 which is an acronym. But these are frames, each containing
21 eight time slots numbered 0 through 8. We see Frame 0.
22 That's the current frame.

23 Next slide.

24 So let me explain what just happened. As Turina
25 explains, when that packet that we just saw lands in

1 Slots 4 and 5 of Frame 0, the current frame, what that does
2 is cause the same two slots in future frames to be
3 reserved. The reservation is made back at this point in
4 time. This is a fairly well-known process.

5 As it turns out, it was also created by Dave
6 Goodman, same Dave Goodman, different publication, known as
7 Packet Reservation Multiple Access.

8 So you first compete for, and in this case -- in
9 this example, these slots were 1. That computation tags
10 the same two slots in subsequent frames as being reserved.
11 They cannot be seized by any other mobile station.

12 So that -- as time goes on -- if you could go to
13 the next slide -- one more.

14 So there's a first packet going into a future --
15 first future frame. Second packet going into a subsequent
16 frame. That's -- that's it.

17 Q. So this is from DX-49; is that right?

18 A. That's correct.

19 Q. And this is -- is this Figure 3?

20 A. This is Figure 3.

21 Q. Is this concept of reserving slots in future frames, is
22 that a 4G concept?

23 A. No. This is a 2G concept.

24 Q. Thank you. What are your opinions with respect to
25 Claim 1?

1 A. My opinion is Claim 1 is obvious in light of the Turina
2 patent.

3 Q. Okay. Does Turina patent -- the Turina patent disclose
4 a method for assigning future slots of a transmission frame
5 to a data packet in the transmission frame for transmission
6 over a wireless medium that includes applying a reservation
7 algorithm?

8 A. Yes, it does, as I just explained.

9 Q. Where is that in Turina?

10 A. Column 4, Lines 57 through 61, and what -- again, I
11 need to remind the jury, and I put it on the slide, a
12 protocol is a sequence of steps.

13 It's a phrase that's used in data communications.
14 It's the same as an algorithm. It's a set of steps to be
15 followed. So when we see protocol in Turina, that's the
16 same as an algorithm. And Turina is telling us that it's
17 using a packet reservation-type protocol. That's Packet
18 Reservation Multiple Access -- multiple access packet
19 reservation-type protocol that I referenced a little
20 earlier.

21 Turina didn't invent that. That was already prior
22 art at the time of Turina, but using Turina nonetheless is
23 disclosing that particular protocol as I just described it.

24 Q. And this -- what you have inside the -- the bullets at
25 the top of this slide, those -- are those your words?

1 A. The bullets at the top are my words, yes.

2 Q. And inside the box here, is that the words that
3 Ericsson had in its patent in 1996?

4 A. Except for the highlighting, yes.

5 Q. Is the concept of applying a reservation algorithm
6 disclosed by Turina?

7 A. Yes, it is.

8 Q. Okay. What about the next two steps, reserving a first
9 slot and a second slot in a future frame?

10 A. Well, that happens exactly as I just described it
11 because the first slot, there's a slot being reserved in a
12 future frame. There's a slot being reserved -- second
13 reserved slot in a subsequent frame. It's in Frame 2.

14 Q. Okay. And just to be clear, what the -- with the jury,
15 the coloring on these slides, you've added?

16 A. Yes. If you see coloring on -- on a slide, unless I
17 created that slide from scratch, I added the coloring.

18 Typically I'll be using an excerpt from a patent
19 or a publication. The patent or publication would be in
20 black. The coloring, I added.

21 Q. And the labels in red on the frames -- the current
22 frame, future frame, and subsequent frame, are those words
23 you added?

24 A. I believe that I did, yes.

25 Q. Okay. But would that be how someone would

1 understand -- would have understood what this figure is
2 disclosing in 1996?

3 A. Yes, it would. This is a time diagram. We see time
4 slots progressing from 0 to 7. In Turina, originally was
5 Frame 0 -- TDMA Frame 0. We can't see it here because it's
6 been colored out. But that was in the original Turina.
7 Followed by Frame 1, followed by Frame 2, so it's a time
8 sequence from left to right.

9 Q. So what about the fact that this -- these claims -- or,
10 sorry, Steps 1B and C say that it has to be a slot reserved
11 for a data packet. Is that in Forslow?

12 A. Yes, it is. So Figure 2 from Forslow was showing us
13 the actual transfer of a data packet, and the excerpt is
14 telling us that the network in Forslow sends the packet
15 over the downlink and the -- the site goes on. But it's
16 clearly talking about transferring packets.

17 Q. And this -- would somebody of ordinary skill understand
18 this transfer in Figure 2 to be sending a packet in the
19 reserve slot?

20 A. Yes.

21 Q. Both of them?

22 A. Yes, both -- both of them.

23 Q. And is -- I think you said Turina is a GPRS and
24 IP-based reference, but does this confirm that?

25 A. Well, this is how I know that Turina is GPRS and

1 IP-based. This is a site from Turina. It's clearly saying
2 GPRS, and it's using Internet Protocol.

3 Q. Where is that site?

4 A. Column 6, Lines 3 through 13 of DX-49.

5 Q. Was there any doubt that this was reserving data
6 packets for IP-flows in these -- for these VIP mobile
7 stations?

8 A. No, doubt.

9 Q. So are -- is Steps B and C disclosed by Turina?

10 A. Yes, both -- I -- I -- Step B is reserving the first
11 slot for an Internet packet flow in a future frame based on
12 a reservation algorithm.

13 Step C, reserving a second slot for a second data
14 packet of the same IP-flow in a later transmission frame.
15 I'm paraphrasing. So as I just explained, B and C are
16 present in Turina.

17 Q. And then this Step D, I think has been discussed a
18 lot. Is -- is Figure 3 showing isochronous?

19 A. Yes, it is. Isochronous was construed by the Court to
20 mean: According to a consistent time interval, and we see
21 the two red arrows that I superimposed on Figure 3 of
22 Turina. There's the first arrow, second arrow. This
23 placement of this position relative to this is the same as
24 the placement of this position relative to this. So
25 they're clearly -- they're happening periodically. That's

1 a constant time interval.

2 Q. Okay. I asked you this question with respect to
3 Forslow. Was Turina cited on the face of the '629 patent?

4 A. Turina was cited on the face of the '629 patent. Thank
5 you. I corrected a mistake that was in my original expert
6 report where I said it was not. That was just a typo or
7 cut-and-paste error. I knew it was on the cover of Turina
8 at that time.

9 Q. Now, you --

10 A. I'm sorry. I knew it was on the cover of the '629.
11 Turina was on the cover of the '629. I knew that.

12 Q. And did -- did it impact -- would it -- did it impact
13 your opinions one way or the other that it was cited or not
14 cited?

15 A. No. As I explained earlier, I did an independent
16 assessment. It didn't matter to me what was cited on the
17 face of the patent or what was not cited on the face of the
18 patent.

19 Q. So going back to this isochronous step, is that met?

20 A. Yes it is.

21 Q. And does Turina disclose each and every element of
22 Claim 1 of the '629 patent?

23 A. It does.

24 Q. What is the next claim that you want to cover?

25 A. Let's look at Claim 4.

1 Q. And what is this idea in Claim 4?

2 A. Okay. So here, the method of Claim 1 requires that the
3 reservation algorithm determines whether the VIP flow is
4 jitter-sensitive.

5 Q. And jitter-sensitive, I think that's been defined
6 today, but what does that mean just as a reminder?

7 A. Well, that would mean that if there's any jitter in --
8 when the packet receives an allotment, that would not be
9 too good. The flow is jitter-sensitive. It needs to land
10 on target, not with some variation around that.

11 Q. And is that disclosed by Turina?

12 A. Yes, it does.

13 So it's telling us that the VIP mobile can be
14 guaranteed a constant delay. Constant delay means there
15 will be no jitter whatsoever. So the reservation algorithm
16 is taken into account that this VIP application needed
17 constant delay, therefore, no jitter.

18 And, in fact, we -- the VIP flow cannot tolerate
19 any jitter. That's why, in fact, this VIP flow is
20 guaranteed periodic access to the channel in subsequent
21 frames.

22 Q. Okay. Could you just summarize your opinions with
23 respect to the asserted claims of the '629 patent?

24 A. Both Claims 1 and 4 are invalid in my opinion.

25 Q. And as between IV and Ericsson, who had this concept of

1 reserving slots in future frames first?

2 A. Ericsson.

3 Q. What is the next patent that we're going to discuss?

4 A. The '517.

5 Q. For the benefit of the jury -- well, I think that we --
6 the jury has an overview of '517 already, but just as a
7 reminder, can you give them the high points?

8 A. Yeah. So Claim 1 requires analyzing contents of
9 packets to be sent over a shared bandwidth in a downlink
10 direction, analyzing reservation requests for packets to be
11 communicated in the uplink direction from at least one CPE
12 and then allocating the shared wireless bandwidth between
13 the downlink and uplink directions.

14 Q. And what is the summary of your opinions with respect
15 to this patent?

16 A. There is a -- there's another IEEE publication, which
17 I'll refer to as being the Passas article, which, in my
18 opinion, renders obvious Claims 1 and 4 either by itself or
19 in combination with two patents, Lin and/or Sriram. I'll
20 talk about those.

21 Q. And this Passas article, was that written by anyone
22 related to Ericsson?

23 A. Not to my knowledge.

24 Q. So what is the publication that you're going to be
25 covering?

1 A. IEEE Communications magazine. Don't be fooled by the
2 word "magazine" in the title. This is a well-respected
3 publication. It's available to any member of the IEEE on a
4 subscription basis. During the relative time frame, I --

5 THE COURT: Dr. Acampora, he just asked you, what
6 is the publication that you're going to be covering, and
7 you identified it as an IEEE magazine. He didn't ask for a
8 full discussion of what it is and how reliable it is and
9 whether you personally subscribe to it. All of that is
10 beyond the scope of his question. Try to limit your
11 answers to the scope of the question that's asked, please.

12 THE WITNESS: I understand, Your Honor. Thank
13 you.

14 THE COURT: All right. Let's continue,
15 Mr. Beck -- Mr. Becker.

16 MR. BECKER: Thank you, Your Honor.

17 Q. (By Mr. Becker) Is this magazine something that you
18 personally subscribe to?

19 A. In that time frame, yes.

20 Q. And it would have been something you received by
21 something what we would call snail mail?

22 A. That came in that era by U.S. mail. Now, it's
23 distributed electronically.

24 Q. Thank you.

25 Now, before we get into this patent -- or sorry --

1 this -- this publication, are there any concepts that you
2 think are important for the jury to understand with respect
3 to this claim?

4 A. Yes.

5 Q. And did Dr. Wicker explain those concepts?

6 A. Yes.

7 Q. What was that concept?

8 A. Okay. The concept is that of time division duplexing.
9 So in the cellular system, we have to accommodate two
10 directions of information flow, the uplink direction from
11 the mobile, the downlink direction to the mobile.

12 One way that it's done, the most common way that
13 it's done in cellular systems is by what's called frequency
14 division duplexing. The two directions that flow each have
15 their own dedicated radio channel. So I can't use the
16 uplink channel to meet a downlink need or vice versa.

17 The alternative to that -- or an alternative to
18 that is known as time division multiplexing. Now, I'm
19 going to create one and only one radio channel, and I'm
20 going to time share it very quickly, ping-ponging back and
21 forth between the two directions, first the downlink flows,
22 then the uplink flows, then the downlink flows, then the
23 uplink flows.

24 So downlink is blue. The uplink is pink. This is
25 my drawing. This didn't come from any publication.

1 Q. Is TDD an example where you would have an allocation of
2 a shared bandwidth between the uplink transmissions and the
3 downlink transmissions?

4 A. Yes. There's only one radio channel that's being
5 shared between the two directions.

6 Q. Is TDD a 4G LTE concept, or does it predate that?

7 A. TDD? TDD goes way back.

8 Q. How far back?

9 A. It might even have been -- well, I was going to say it
10 might have been pre-cellular, but that would not have been
11 created based on a cell phone. So it went back to 2G for
12 sure.

13 Q. It was well-known in 1998?

14 A. It was well-known in 1998.

15 Q. Okay. So with respect to Passas, what makes Passas
16 prior art?

17 A. Its publication date of November 1997.

18 Q. And the fact that it's not an Ericsson publication, and
19 it's not a patent, can it still invalidate?

20 A. Yes.

21 Q. Why is that?

22 A. It's prior art. It was in a printed publication that
23 was available to the public. Anyone could have subscribed
24 to it.

25 Q. And is that -- is that because you can't read a

1 magazine article and then go file a patent on that concept
2 and -- and get a patent?

3 A. Well, that's right. So the intent is that you don't do
4 that. You don't read the article and say, hmm, let me run
5 out and get a patent.

6 Q. Okay. What is the -- and that's because -- that's
7 because that would be somebody else's idea and not your
8 idea, right?

9 A. Well, somebody else's idea, or it might have been
10 reported by somebody else -- it might have been reporting
11 something else. I can't even claim that Passas -- I know
12 Passas did not invent TDD --

13 Q. Right.

14 A. -- or did not invent much more than we discussed.

15 Q. Dr. Acampora, what's the name of the article you're
16 going to use?

17 A. Quality of Service Oriented Medium Access Control for
18 Wireless ATM Networks.

19 Q. What's the exhibit number?

20 A. DX-95.

21 Q. And we've heard this term this week, ATM. What is that
22 again?

23 A. Not an automatic teller machine. It's -- it's an
24 acronym for a packet used in some types of communications
25 networks. It stands for the asynchronous transfer mode.

1 It was well-described in --

2 THE COURT: Slow -- slow down, Dr. Acampora,
3 please.

4 THE WITNESS: Yes, Your Honor.

5 THE COURT: It's the third time I've asked you.
6 Please slow down.

7 THE WITNESS: I understand.

8 THE COURT: Let's continue.

9 Q. (By Mr. Becker) Do you have any -- is the concept of
10 ATM well-known?

11 A. Yes.

12 Q. Do you have -- are there any dictionaries that describe
13 what ATM is?

14 A. Yes.

15 Q. Is this an example -- well, is this a dictionary
16 definition on the screen?

17 A. Yes.

18 Q. What is the definition, according to this dictionary?

19 A. Well, I'll describe only what I highlighted. Packet
20 switching -- well, it's a packet switching communication
21 standard which uses packets of constant length called ATM
22 cells. And I actually had explained this earlier. It's
23 just a name.

24 These were smaller units of data, 48 by payload --
25 it was relatively small -- five by header, so 53 bytes in

1 total. And since only that fixed-length packet could be
2 used in ATM, a term was coined. It was called a cell.

3 It's a data packet. It's a constant length data packet.

4 Q. Does an ATM cell meet the definition that Dr. Williams
5 provided for packet in his slides?

6 A. Yes.

7 Q. Now, this mentions something called a virtual channel.
8 Does the fact that a system uses a virtual channel or a
9 virtual circuit mean that it does not use packets?

10 A. No, not at all. Virtual channel is a concept that's
11 tightly coupled with this notion of admission control that
12 I referenced earlier.

13 So before a new application flow was allowed into
14 the network with a guaranteed quality of service, the
15 admission controller must grant it permission to send
16 packets that will enjoy that service quality. Otherwise,
17 the new connection is either blocked, or it's given lowest
18 priority traffic. There's no real circuit associated with
19 that flow. It's just the allowability of the flow with the
20 guaranteed service quality. That's why it's called
21 virtual.

22 Q. And I think we've heard it said in the presentation
23 today that -- or yesterday that Dr. Jorgensen rejected ATM.
24 Do you recall that?

25 A. Yes.

1 Q. Is the fact that -- if it's true that Dr. Jorgensen may
2 have decided not to use ATM at some point in his prototype
3 system, does that have any bearing on the scope of the
4 claims at -- at issue in this case?

5 A. No.

6 Q. And you've read the claims?

7 A. I've read the claims.

8 Q. Is there anything in the claims of the '517 patent that
9 exclude ATM?

10 A. No.

11 Q. Is there anything in the specification that excludes
12 ATM?

13 A. No.

14 Q. Could we provide -- could you please provide an
15 overview of the Passas system?

16 A. Yes. This is the lay of the land, once again. I
17 colored Figure 1 of Passas only to show the mobile
18 terminals and the access point or base station.

19 And then Passas also includes one of these
20 packets, which is an ATM switch -- an ATM packet network,
21 but I'm focusing mostly on the access point in the mobile
22 terminal.

23 Q. Okay. And I -- I think you've -- you've been in the
24 court this -- this week, and you've heard arguments going
25 back and forth about mobile terminals and CPE. It's -- if

1 IV is right and mobile terminals are CPE, does Passas have
2 those?

3 A. I'm sorry, ask that one more time, please.

4 Q. If IV is right and mobile terminals are CPE, does
5 Passas have those?

6 A. Yes, right there.

7 Q. Is a mobile terminal a CPE station under the Court's
8 construction?

9 A. No, it's not.

10 Q. And why is that?

11 A. CPE station was construed by the Court to mean -- we've
12 heard this before -- devices residing on a premises of a
13 customer and used to connect the telephone network -- used
14 to connect to a telephone network, including ordinary
15 telephones, key telephone systems, PBXs, videoconferencing
16 devices, and modems. So that's not an exhaustive list
17 of -- of devices residing in a premises, but those are
18 examples of what might be. So the premises equipment would
19 include these devices and possibly others.

20 Q. Okay. Would it be obvious to use an actual CPE station
21 that meets the Court's construction in a system like
22 Passas?

23 A. Yes, it would be because --

24 Q. I'm sorry.

25 A. It's actually easier to provide service to a fixed

1 point like a premises than it is to a mobile device, as in
2 Passas, because a mobile device is moving. The channel --
3 the radio channel conditions can change. There are a whole
4 bunch of issues in wireless communications that we have not
5 discussed affecting the quality of the radio channel. And
6 if the mobile station is moving, it might also need to have
7 its connection handed off from one cell to another as you
8 travel from the footprint of one to another. It's much
9 easier to provide service on a fixed point basis, so it
10 would be obvious to use customer premises equipment in
11 Passas.

12 Q. Do you have any evidence to support your opinion that
13 CPE was well-known and obvious in 1998?

14 A. I do.

15 Q. What is that?

16 A. Next slide, please.

17 So this is a U.S. patent filed in March of 1998
18 issued to a fellow named Lin. I believe Lin was at Nortel
19 Networks, although it's not shown here.

20 But what's shown in this drawing from the Lin
21 patent is subscriber premises, and a wireless link from the
22 premises back to a base station, as it turns out. So
23 what's included inside of the house is an antenna, and this
24 is some radio equipment in this box right here. And these
25 are devices that will attach to the radio station using

1 wiring from within the house. So this is an example of
2 customer premises equipment.

3 Q. Now, this type of equipment shown in this figure, was
4 that common in 1998?

5 A. It was quite common. In fact, it was standards that
6 were developed by the IEEE to support so-called fixed point
7 service. It was -- it was a way to avoid telephone wiring.
8 So you would deliver services to a premise by radio rather
9 than buried cable.

10 Q. Is this type of equipment common today?

11 A. I believe it is.

12 Q. Is it common in 4G LTE systems to use this type of
13 equipment?

14 A. Well, it could be used. You're asking is it common. I
15 don't know how common it would be. 4G systems typically
16 support laptops that you carry with you or tablet devices
17 or phones.

18 Q. Thank you.

19 Is the -- I'm sorry. Sorry. Do you have an
20 overview of the -- how the shared -- how the wireless
21 bandwidth in Passas is shared?

22 A. Yeah. Could we have the next slide?

23 So this is just some detail. We already spoke at
24 a high level about time division duplexing. Passas is a
25 time division duplex system. What's shown here is the

1 downlink portion of a frame and the uplink portion of a
2 frame.

3 During the downlink portion, the -- the base
4 station will send data to the mobile. During the uplink
5 portion, mobiles will send data to the base station.

6 There are additional parts of the frame. This one
7 we don't -- we won't discuss. This one we'll discuss a
8 little bit later. So it's time division duplex. There's
9 an uplink portion and a downlink uplink portion, shared
10 wireless bandwidth.

11 Q. Is this -- does this meet the concept of allocating a
12 shared wireless bandwidth between the uplink transmissions
13 and downlink transmissions?

14 A. It does.

15 Q. Okay. Are you -- would you like to speak about the
16 claims now?

17 A. If I might point out one more thing that I didn't
18 include in an answer to an earlier question.

19 Q. Sure.

20 A. Without going through these intermediate levels here,
21 this is sort of a -- a telescoping drawing, but what
22 ultimately happens is that ATM packets are placed in the
23 downlink period. They're also placed in the uplink period.

24 Q. Are you ready to begin the --

25 A. Yes.

1 Q. -- analysis of your -- of Claim 1?

2 A. Yes.

3 Q. What are your opinions with respect to -- well, first,
4 can you give an overview of Steps A through C in this
5 claim. At a high level, what's the main concept here?

6 A. Yeah. We already discussed this. So analyze contents
7 in the downlink direction, analyze reservation requests in
8 the uplink direction, allocating shared wireless bandwidth
9 between the base station and the CPE station.

10 Q. Is that concept found in Passas?

11 A. Yes, as I just described. So here's an excerpt from
12 Passas telling us that the access point is going to
13 construct the next frame. Here's the frame that's being
14 constructed by the access point. The construction takes
15 place earlier in time, somewhere over here.

16 And what it does, it's using a scheduling
17 algorithm that will be described that takes into account
18 reservation requests sent by the mobiles, and it takes into
19 account arriving cells for each downlink connection.

20 So by taking into account, it's going to analyze
21 the contents of those packets. And when you take those
22 into account to perform its downlink scheduling, it's going
23 to take reservation requests into account when performing
24 its uplink scheduling.

25 Q. So at a high -- at a high level are the Concepts A

1 through C anything new?

2 A. No.

3 Q. Now, you said here that taking into account the
4 arriving cells reach downlink connection, how do we know
5 that involves analyzing the content of a packet?

6 A. Well, Passas has told us that he's going to take into
7 account reservation requests. Those are -- let's see what
8 the claim requires here, analyzing reservation requests.

9 Q. I'm sorry, my question was about Step A, analyzing
10 contents of the packets that are to be sent in the
11 downlink?

12 A. Yeah, so I already explained that there. I'm sorry.

13 So Passas tells us that in preparing or
14 constructing the next frame, the access point, the base
15 station, will take into account arriving cells in a
16 downlink direction. That's analyzing the contents in a
17 downlink direction. The downlink cells will be taken into
18 account. They'll be inspected to determine who gets to go
19 and when.

20 Q. Thank you. And how do we know what an ATM cell looks
21 like? Do you have any evidence of how the ATM cell --

22 A. Yeah, I -- there's another reference. Again, the ATM
23 cell is well-known, but I have a reference.

24 Q. What reference is that?

25 A. This is the second patent that I referred to earlier, a

1 Sriram patent, that actually issued in 1995. And what's
2 shown here -- this is from the Sriram patent. What's shown
3 here is the ATM cell or packet. This is 5 -- 5 header that
4 I -- 5 -- an octet is a byte. I mentioned the 5 byte
5 header earlier. I mentioned the 48 byte payload. There's
6 the structure of the ATM packet. And included in the
7 header is the virtual channel identifier. That's what's
8 actually going to be inspected. In ATM, that's the only
9 thing that the network will rely on, that virtual
10 connection number found in the header, to advise the
11 network where the packet came from, where it's to be
12 delivered, and what quality of service it should enjoy.

13 Q. So in the system of Passas, would it have been obvious
14 to look in the packet cell header to identify what
15 connection it was for?

16 A. Passas is an ATM reference. The only place to learn
17 anything about the needs of this particular packet are in
18 the header, and in particular the virtual channel
19 identifier contained inside the header.

20 Q. Okay. I'd like to ask you another question about Claim
21 Steps A through C. Will that be all right?

22 A. Yeah, please.

23 THE COURT: Counsel, you don't have to ask
24 permission to ask a question. Just ask the next question.

25 MR. BECKER: Okay.

1 THE COURT: Let's move along.

2 MR. BECKER: Thank you, Your Honor.

3 Q. (By Mr. Becker) Just for -- just to clarify the
4 record, the dictionary definition that we talked about, was
5 that DX-214? Do you recall that?

6 A. I don't recall it was 214. But we have the slide. If
7 you want to go back to that, I can confirm that. There it
8 is. Yeah, this is the dictionary definition, and it is
9 DX-214.

10 Q. Okay. Okay. So going back to the -- the claims, I
11 want to ask you another question about Claims A through C.

12 A. Okay.

13 Q. It says here in Step B that the reservation request
14 comprises a subscriber identifier and at least one other
15 subscriber attribute. Is that found in Passas?

16 A. Yes, it is. So Passas is telling us that the mobile
17 terminal will send reservation requests to the AP. Those
18 reservation requests will identify the current needs of an
19 uplink connection, and they'll come from the specific
20 mobile terminal. In other words, that reservation request
21 must identify who sent this request. The mobile terminal
22 they identified, that would be the subscriber identifier in
23 the claim.

24 The current needs, those would be some subscriber
25 attributes, also carried in the reservation request. What

1 service follower do I need, as an example.

2 Q. Is there anything novel about including this kind of
3 information in a reservation request?

4 A. No.

5 Q. Is this analogous to any everyday example that you can
6 think of?

7 A. Yeah. I'll use a reservation at a restaurant, once
8 again, but a different example. And like Dr. Wicker said,
9 analogies are good, but they can stretch to a certain
10 point. This one, I think, is actually pretty good.

11 So if I want to make a reservation in a
12 restaurant, I'll call up and I'll identify who I am --
13 let's suppose I get a machine. The restaurant is closed,
14 so I get an answering machine. So I'd say, I'm Tony
15 Acampora, I need a reservation for a party of four at 8:00
16 o'clock. I just identified who I am, and I've said
17 something about my needs. 8:00 o'clock, party of four.
18 Without that, I'd have no hope of getting a call back. The
19 call back would be, yes, Mr. Acampora, I know you called,
20 you left your name, and I know what your needs are. You're
21 in. I've got your table for four at 8:00 o'clock. So
22 that's what's going on here.

23 Q. And is that the kind of information the Passas base
24 station uses to schedule packets in the uplink direction?

25 A. Yes, that's what the -- that's what the site says.

1 Q. Okay. So -- and -- and the reservation request and the
2 contents of packets, those are used to allocate the
3 bandwidth in Passas?

4 A. Yes. That's what's used to allocate the bandwidth in
5 Passas, exactly.

6 Q. Okay. What about the last two steps?

7 A. Okay. So the assigning step. So assigning steps in a
8 slot to one access station and communicating the assigned
9 slots to at least one access station in a reservation
10 request acknowledgement section of a frame. I said we
11 would talk about the frame header, and now we will.

12 So the frame header is actually telling each
13 mobile -- actually two things. It's telling the mobile
14 whether it has any slot assigned in the downlink direction
15 that it should listen to, and also it's telling the mobile
16 station whether and if so, which time slot has been
17 assigned to that mobile station to communicate in the
18 uplink direction. All that information is contained
19 mobile-by-mobile in the frame header period of the frame.
20 So that's what goes first.

21 The frame header is sent. The mobiles now know
22 which slots, if any, in the downlink direction they
23 should listen to and which slots, if any, they should
24 transmit in in the uplink direction if they've been given
25 the grant. That information is in the frame header, and

1 Passas tells us that frame construction. What's carried in
2 the frame header is the position of the slots allocated to
3 each downlink and uplink direction, each mobile in the
4 downlink direction, each mobile in the uplink direction.

5 So D and E are both disclosed in Passas.

6 Q. Okay. Does that cover each and every element of Claim
7 1 of the '517 patent?

8 A. It does.

9 Q. Are all of these concepts in Passas?

10 A. They are.

11 Q. And if they're not in Passas, it would be obvious in
12 view of what someone would know about ATM cells?

13 A. That's correct. So it would be obvious to use -- well,
14 Passas tells us ATM, so what Sriram is telling us would
15 have been known to a person of skill, but you could always
16 look at Sriram to see. It would be obvious in Passas that
17 a mobile station could be CPE. And if not, then look at
18 the Lin reference.

19 Q. And just for the record, the Passas article is DX-95?

20 A. It is.

21 THE COURT: Approach the bench, counsel.

22 (Bench conference.)

23 THE COURT: How much more do you have? We've been
24 over two hours.

25 MR. BECKER: Five minutes.

1 THE COURT: Five minutes you'll be done?

2 MR. BECKER: Yes, sir.

3 THE COURT: Let's finish up.

4 (Bench conference concluded.)

5 THE COURT: Please continue.

6 Q. (By Mr. Becker) Do you have any opinions with respect
7 to Claim 4?

8 A. I do. I believe that it's anticipated and obvious in
9 light of Passas.

10 Q. And before we go there, just to clarify the record, the
11 Lin patent, is that -- I'm sorry, I'll -- I'll do it at the
12 end.

13 Can you give us your opinions about Claim 4?

14 A. Yes. As I said, I believe Claim 4 is anticipated and
15 rendered obvious.

16 Q. And what is required by Claim 4?

17 A. Claim 4 requires that at least one of other subscriber
18 attribute comprises a quality of service classification.

19 Q. Is that in Passas?

20 A. It is.

21 Q. Can you please explain?

22 A. Yeah. So Table 1 is, again, taken from Passas. I
23 didn't even color this. And it's telling us different
24 priority numbers and the different service classes.

25 So the virtual connection number would map to one

1 of these quality of service -- one of these priority
2 numbers, a specific quality of service class.

3 So this limitation is in Passas. The other
4 subscriber attribute is the quality of service that it
5 need -- that it needs. That's carried in the virtual
6 connection number.

7 Q. Okay. And just as a final summary, what are your
8 opinions with respect to the '517 patent?

9 A. Claims 1 and 4, the -- the asserted claims are invalid
10 in view of the Passas article.

11 Q. And one -- one final thing before I pass the witness
12 and then I'd like to also clarify the record with respect
13 to one exhibit, but one final thing, are you aware of a
14 concept called secondary considerations?

15 A. I am.

16 Q. And what does that mean?

17 A. So as it was explained to me in my legal guidelines, a
18 patentholder could challenge the claim of obviousness. The
19 patentholder can say, well, no, it wasn't obvious and there
20 are conclusive reasons why. But here, as I understand it,
21 it's the patentholder's burden to prove that there was some
22 of these secondary considerations.

23 No -- was there industrial praise, long-felt need,
24 some commercial success, any commercial acquiescence? And
25 I considered these, and in my opinion, none of these are

1 present.

2 Q. And with respect to that last one, commercial
3 acquiescence, is there any evidence that AT&T or Verizon
4 took a license to these patents because of these patents?

5 A. No, I've heard about licenses that IV has made to AT&T
6 and Verizon, but as I understand these secondary
7 considerations, there must be a nexus. The patentholder
8 would have to show that it was -- as an example, industrial
9 praise based on this patent.

10 I saw there were commercial licenses, but I
11 haven't seen any evidence that those licenses were tied to
12 these -- to these patents. They were broad licenses.

13 Q. Thank you. Could you -- could you turn to DX-42 in
14 your -- in your notebook, please?

15 A. I'm there.

16 Q. Is that the Lin patent that you were discussing earlier
17 with respect to CPE stations?

18 A. Yes, it is.

19 MR. BECKER: Okay. Pass the witness.

20 THE COURT: All right. Ladies and gentlemen,
21 we're going to break for the evening at this point. We'll
22 pick up with cross-examination of the witness by Plaintiff
23 in the morning.

24 Please leave your notebooks closed and on the jury
25 room table.

1 Please follow all my instructions, of course, not
2 to talk with anyone about the case. You would expect me to
3 remind you of that. Please be back tomorrow morning at the
4 same time as you were the last couple of days, assembled
5 and ready to go around 8:30.

6 Travel safely. Have a good night, and you're
7 excused for the evening at this time.

8 COURT SECURITY OFFICER: All rise.

9 (Jury out.)

10 THE COURT: Be seated, please.

11 Dr. Acampora -- Acampora, you may leave the
12 witness stand.

13 THE WITNESS: Thank you, Your Honor.

14 THE COURT: We'll have you back in the morning.

15 THE WITNESS: Yes, sir.

16 THE COURT: All right. Are there any issues with
17 either Plaintiff or Defendant before we recess for the
18 evening?

19 MR. BLACK: No, Your Honor, not from Plaintiff.

20 MR. KUBEHL: No, Your Honor.

21 THE COURT: All right. Let me give you an update
22 on your time, just for your information. We've used 7
23 hours and 48 minutes on the record today.

24 Plaintiff has a total 4 hours and 40 minutes
25 remaining.

1 Defendant has a total of 3 hours and 21 minutes
2 remaining.

3 I will be in chambers by 7:30, if there are issues
4 to take up that are not able to be resolved by candid and
5 strenuous effort to meet and confer overnight.

6 And, again, I remind you to be ready to read into
7 the record the items from the list of pre-admitted exhibits
8 that have been used during today's portion of the trial
9 before I bring the jury in in the morning.

10 Without anything further, we stand in recess until
11 tomorrow morning.

12 COURT SECURITY OFFICER: All rise.

13 (Recess.)
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CERTIFICATION

I HEREBY CERTIFY that the foregoing is a true and correct transcript from the stenographic notes of the proceedings in the above-entitled matter to the best of my ability.

/S/ Shelly Holmes
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Expiration Date: 12/31/20

2/6/19
Date